



549552

Durno, Mark

From: Durno, Mark
Sent: Thursday, October 13, 2016 9:02 AM
To: Pressman, Jonathan
Cc: Donnelly, Peggy; Mendez, Thomas; Maraldo, Dean; Rogers, Joan; Deltoral, Miguel
Subject: RE: PoU Filter Study Release

Follow Up Flag: Follow up
Flag Status: Flagged

Talked to Shawn last night. They measured free chlorine. When he has his entire data set, they will remove the non-Flint data and send us the full package.

Mark Durno

Homeland Security Advisor / Deputy Chief
Emergency Response Branch
U.S. Environmental Protection Agency
25063 Center Ridge Road
Westlake, OH 44145
440-250-1743

From: Pressman, Jonathan
Sent: Thursday, October 13, 2016 8:58 AM
To: Durno, Mark <durno.mark@epa.gov>
Cc: Donnelly, Peggy <Donnelly.Peggy@epa.gov>; Mendez, Thomas <mendez.thomas@epa.gov>; Maraldo, Dean <Maraldo.Dean@epa.gov>; Rogers, Joan <rogers.joan@epa.gov>; Deltoral, Miguel <deltoral.miguel@epa.gov>
Subject: RE: PoU Filter Study Release

Thanks Mark

Interesting, but as you note, still need more information. Dates and locations are important. Cold or hot water (assume cold, but needs to be asked). Free or total chlorine. If any of the samples are outside Flint or from wells, they should be removed from the analysis. And how was the site selection done randomly. Just a few of the questions

Jonathan Pressman, Ph.D., P.E.
U.S. Environmental Protection Agency
Water Supply & Water Resources Division
National Risk Management Research Laboratory
26 West Martin Luther King Drive (msG75)
Cincinnati, Ohio 45268
Phone: (513) 569-7625
Fax: (513) 487-2543
pressman.jonathan@epa.gov

From: Durno, Mark
Sent: Wednesday, October 12, 2016 9:28 AM

To: Pressman, Jonathan <Pressman.Jonathan@epa.gov>

Cc: Donnelly, Peggy <Donnelly.Peggy@epa.gov>; Mendez, Thomas <mendez.thomas@epa.gov>; Maraldo, Dean <Maraldo.Dean@epa.gov>; Rogers, Joan <rogers.joan@epa.gov>; Deltoral, Miguel <deltoral.miguel@epa.gov>

Subject: FW: PoU Filter Study Release

Jonathan,

See below and attached. Still playing phone-tag with Shawn, but, I'd like to know the general areas where they are seeing lower chlorine to see how they match up with our areas of concern.... As noted below, he'll provide an updated data set soon....

md

Mark Durno

Homeland Security Advisor / Deputy Chief
Emergency Response Branch
U.S. Environmental Protection Agency
25063 Center Ridge Road
Westlake, OH 44145
440-250-1743

From: Shawn Patrick McElmurry [<mailto:s.mcelmurry@wayne.edu>]

Sent: Tuesday, October 11, 2016 9:59 PM

To: Durno, Mark <durno.mark@epa.gov>

Cc: Nancy Love <nglove@umich.edu>; Susan Masten <masten@egr.msu.edu>

Subject: RE: PoU Filter Study Release

Sorry Mark, I am having a tough time catching back up from being gone for 3 weeks. The main thing I wanted to do was follow up with you regarding the chlorine levels that I have observed. This came up on one of our recent conference calls and you expressed interest in the data.

As data has been slowly coming in, I have been noticing that our field teams are still reporting many low chlorine levels (<0.2) at the kitchen sink after 5 minutes of flushing. Attached is a quick glance at what I am seeing.

A couple of caveats:

1. This data surely includes sites outside of Flint. So it could be better, it could be worse. I suspect that some of these are homes that are outside of Flint and on wells.
2. This is only a portion of data we have collected. As of Friday, we had collected samples from approximately 90 homes. Unfortunately, we are behind in data entry so I only have these to look at quickly.

I'm going to do a little digging on this data and try to update it. I'll also try to plot out the data spatially. Once I get a better understanding of the data, I'll share it with you, DEQ, GCHD, the water department, etc. Unfortunately, this may take a few days.

Shawn

From: Durno, Mark [<mailto:durno.mark@epa.gov>]

Sent: Tuesday, October 11, 2016 9:16 AM

To: Shawn Patrick McElmurry <s.mcelmurry@wayne.edu>

Subject: RE: PoU Filter Study Release

Hey Shawn. I was off yesterday. I'll be driving all morning and available today (except for 2-3 pm eastern).

Mark

Mark Durno

Homeland Security Advisor / Deputy Chief
Emergency Response Branch
U.S. Environmental Protection Agency
25063 Center Ridge Road
Westlake, OH 44145
440-250-1743

From: Shawn Patrick McElmurry [<mailto:s.mcelmurry@wayne.edu>]
Sent: Monday, October 10, 2016 10:21 AM
To: Durno, Mark <durno.mark@epa.gov>
Subject: FW: PoU Filter Study Release

Hey Mark, I know I owe you a call back. Tied up now. Is there a time that works well for you today?

Shawn

From: Henry, James [<mailto:jhenry@gchd.us>]
Sent: Monday, October 10, 2016 10:08 AM
To: Cupal, Suzanne <scupal@gchd.us>; LaRocco, Toni <tlarocco@gchd.us>; Valacak, Mark <MVALACAK@gchd.us>;
Durno.Mark@epamail.epa.gov; Shawn Patrick McElmurry <s.mcelmurry@wayne.edu>
Subject: RE: PoU Filter Study Release

Hi Shawn, I'm confident that we will receive questions about this, specifically what can be done to reduce potential risks, now. Please see my recommendations below.

From: Cupal, Suzanne
Sent: Monday, October 10, 2016 9:58 AM
To: Henry, James; Cupal, Suzanne; LaRocco, Toni; Valacak, Mark; Durno.Mark@epamail.epa.gov
Subject: RE: PoU Filter Study Release

Wayne State is sending this out. We don't get a say in it. I forwarded the release to Mark Durnow and Gretchen Michael earlier as we are all likely to receive questions....

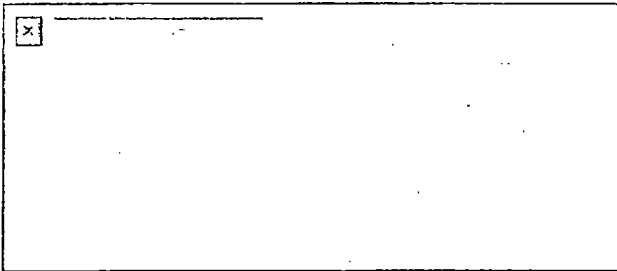
Suzanne Cupal, M.P.H.
Public Health Division Director
Genesee County Health Department
630 S. Saginaw Street
Suite 4
Flint, MI 48502
(810) 768-7970
scupal@gchd.us

From: Henry, James
Sent: Monday, October 10, 2016 9:56 AM
To: 'scupal@gchd.us'; LaRocco, Toni; 'MVALACAK@gchd.us'; Durno.Mark@epamail.epa.gov
Subject: FW: PoU Filter Study Release

Reads pretty good, but I think we should incorporate an action step for residents.

Perhaps a quote from, Mark Durno regarding the EPA chlorine monitoring campaign throughout the City to ensure levels are adequate to kill bacteria. Maybe a quick message about the importance of running the water to pull in chlorine into the residential POU filter, as the lack of use allows chlorine to dissipate, creating an environment for bacteria to grow.

Jim Henry RS, MBA
Environmental Health Director
Genesee County Health Dept www.gchd.us
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For a copy of the Health Department's Notice of Information Practices, contact the Health Department or visit the Health Department's website at <http://www.gchd.us/>

From: Cupal, Suzanne
Sent: Monday, October 10, 2016 8:55 AM
To: Valacak, Mark; Henry, James; LaRocco, Toni
Subject: FW: PoU Filter Study Release

FYI...

Suzanne Cupal, M.P.H.
Public Health Division Director
Genesee County Health Department
630 S. Saginaw Street
Suite 4
Flint, MI 48502
(810) 768-7970
scupal@gchd.us

From: Shawn Patrick McElmurry [<mailto:s.mcelmurry@wayne.edu>]

Sent: Monday, October 10, 2016 8:51 AM

To: ppugh@cityofflint.com

Cc: Matthew Seeger; Paul Evan Kilgore; Wells, Eden (DHHS; Cupal, Suzanne; Laura Carravallah; Lawrence Reynolds; Nancy Love; Susan Masten; Paul Evan Kilgore; **Non-Responsive**

Subject: FW: PoU Filter Study Release

Dr. Pugh, attached is a joint press release that will be sent out today regarding the filter study. I am sorry but Matt didn't have your email when he sent this out last night - my apologies. Please confirm I have the right email and you received this.

It was great meeting with you Friday.

Cheers!

Shawn

Shawn P. McElmurry, Ph.D., P.E.
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Detroit, Michigan 48202
Phone: 313-577-3876
Fax: 313-577-3881
Skype: s.mcelmurry
www.eng.wayne.edu/mcelmurry

From: Matthew Seeger

Sent: Sunday, October 9, 2016 10:47 PM

To: Wells, Eden (DHHS) <WellsE3@michigan.gov>; Suzanne Cupal <scupal@gchd.us>; Laura Carravallah

<Laura.Carravallah@hc.msu.edu>; **Non-Responsive**

Cc: Nancy Love <nglove@umich.edu>; Shawn Patrick McElmurry <s.mcelmurry@wayne.edu>; Susan Masten <masten@egr.msu.edu>; Paul Evan Kilgore <paul.kilgore@wayne.edu>; **Non-Responsive**

Subject: PoU Filter Study Release

Dear Colleagues,

The PoU filter team has been working on a joint statement about the study and we have reached consensus about the following release. We believe this accurately reflects the current state of the study. We expect this to be released sometime tomorrow.

Thank you,

Matt Seeger



Matthew W. Seeger, Ph.D.
Professor and Dean
College of Fine, Performing & Communication Arts
5104 Gullen Mall - The Linsell House

Wayne State University
Detroit, MI 48202
Phone: (313) 577-5342
FAX: (313) 577-5355

Web: <http://www.cfpc.wayne.edu/>
Please reply to: Matthew.Seeger@Wayne.edu

Michigan universities collaborate to examine Flint water filters

ANN ARBOR—DETROIT—EAST LANSING - Researchers from the University of Michigan, Wayne State University and Michigan State University are conducting studies to determine the best ways to manage the type of point-of-use water filters being used by Flint residents. The studies are supported by grants from the National Science Foundation.

Several studies have also shown that point-of-use water filters can harbor and support the growth of bacteria in water, said Nancy Love, professor of civil and environmental engineering at the University of Michigan. Filters have been shown to work well to remove metals such as lead and chemicals from produced during chlorination. Love emphasized that Flint residents should continue to use water filters in accordance with manufacturer's recommendations.

"All water, including drinking water, contains some amount of bacteria. The question is whether the bacteria are harmful," Love said. "Our research is focused on helping to determine how filters may be used to reduce or prevent transmission of harmful bacteria through the filters. Our study is well underway and we will make the results public once the scientific process is complete." The research team is coordinating closely with the Michigan Department of Health and Human Services, the Genesee County Health Department and the Flint Mayor's Office.

Manufacturers typically recommend replacing filters after processing approximately 100 gallons. Susan Masten, professor of civil and environmental engineering at Michigan State University noted that the team is examining if this point-of-use replacement schedule is best for the Flint water distribution system.

Masten added, "Based on the results we have gathered thus far, the filters are doing a good job removing lead and disinfection by-products. These by-products are the chemical compounds that occur after water has been disinfected and are measured as total trihalomethanes. So far, after filtration, these chemical are typically at concentrations below what we can measure."

The research is expected to provide additional guidance about the use of filters in Flint. Shawn McElmurry, associate professor of civil and environmental engineering at Wayne State University emphasized that the research group is committed to addressing resident's concerns and need for scientific information about the quality of their water.

The team appreciates the cooperation of Flint residents, which makes the study possible by providing access into their homes and supplying the filters used in the study.

Durno, Mark

From: Durno, Mark
Sent: Tuesday, October 18, 2016 8:28 AM
To: Pressman, Jonathan
Subject: Re: Discuss Preliminary Research Results

Follow Up Flag: Follow up
Flag Status: Flagged

Thanks! Please keep me posted if any thing new is learned. I'll do the same.

Sent from my iPhone

On Oct 17, 2016, at 8:25 PM, Pressman, Jonathan <Pressman.Jonathan@epa.gov> wrote:

FYI

Sent from my iPhone

Begin forwarded message:

From: "Feighner, Bryce (DEQ)" <FEIGHNERB@michigan.gov>
Date: October 17, 2016 at 8:52:04 PM EDT
To: Shawn Patrick McElmurry <s.mcelmurry@wayne.edu>
Cc: "jmcday@cityofflint.com" <jmcday@cityofflint.com>, Jonathan Pressman <Pressman.Jonathan@epa.gov>, "Bloemker, Jon (DEQ)" <BLOEMKERJ@michigan.gov>
Subject: Fwd: Discuss Preliminary Research Results

Hey Shawn,

There is a team of EPA, DEQ and City folks who monitor chlorine residuals and coliform bacteria routinely. We need to include some of those team members in this discussion. From EPA I would suggest Jonathan Pressman. From my staff I would suggest Jon Bloemker.

Thank. Bryce

From: Shawn Patrick McElmurry
<s.mcelmurry@wayne.edu>
Sent: Monday, October 17, 2016 11:16 AM
To: JoLisa McDay
Cc: Paul Evan Kilgore; Sylvester Jones; Pamela Pugh;
Nancy Love; James Henry (jhenry@gchd.us); Wells,
Eden (DHHS)
Subject: Discuss Preliminary Research Results

Hello JoLisa, we are beginning to get results back that I think are important for you to know about. A couple key issues that I would like to discuss is:

1. We are seeing relatively high amounts of bacteria in water entering a few homes. This data is coming back to us through both the NSF funded study as well as the FACHEP study focused on Legionella.
2. We have detected *Legionella pneumophila* sero group 6 entering a few homes. While I cannot provide you with the individual residents, due to our IRB and the fact we do not yet have a data sharing agreement, I could describe it at a higher level that would allow for the utility to flush the lines in some areas.
3. We are finding chlorine levels to be low (0.2 mg/L) in about 24% of the homes we test. These samples are collected from the cold water tap after 5 minutes of flushing so they should represent, as best we can, the water in the main at these locations. However, I need to caution you on these results. Some of these are from outside the city of Flint. I do not believe there are many from outside Flint (there are a few homes utilizing wells that we have sampled) but I am guessing this is a higher estimate of the true number.

For all of this data I am working today and tomorrow to link our measurements with spatial descriptors so this information can be more useful. I and a few others from the team will be in Flint Wednesday afternoon. Any chance we could meet to discuss soon?

Also, I would really like to finalize our data sharing agreement this week. This will make discussing this type of information much easier. Additionally, I would like to look at how the incidence of breaks and repairs corresponds to the water quality measurements we are collecting.

As always, please do not hesitate to contact me on my phone anytime (517-944-0996).

Sincerely,
Shawn McElmurry

Shawn P. McElmurry, Ph.D., P.E.
Associate Professor
Wayne State University
Dept. of Civil and Environmental Engineering

Durno, Mark

From: Durno, Mark
Sent: Tuesday, October 18, 2016 5:19 PM
To: Donnelly, Peggy; Thomas Mendez; Maraldo, Dean; Rogers, Joan; Pressman, Jonathan; Lytle, Darren; Schock, Michael; Shoven, Heather
Subject: FW: FYI - Wayne State / Kettering release

Follow Up Flag: Follow up
Flag Status: Flagged

FYI – see below and attached.

Mark Durno
Homeland Security Advisor / Deputy Chief
Emergency Response Branch
U.S. Environmental Protection Agency
25063 Center Ridge Road
Westlake, OH 44145
440-250-1743

From: Durno, Mark
Sent: Tuesday, October 18, 2016 4:14 PM
To: Russell, Diane <russell.diane@epa.gov>; Geyer, Rebecca <geyer.rebecca@epa.gov>
Subject: FYI - Wayne State / Kettering release

FYI – see below and attached.

Mark Durno
Homeland Security Advisor / Deputy Chief
Emergency Response Branch
U.S. Environmental Protection Agency
25063 Center Ridge Road
Westlake, OH 44145
440-250-1743

From: Durno, Mark
Sent: Tuesday, October 18, 2016 4:11 PM
To:
Cc:
Subject: RE: Flint Week Look-ahead

For situational awareness – Wayne State / Kettering will be releasing a version of this draft tomorrow on their web-site. Their current findings from their Legionella investigation. Key message include that Leginella is present but looks like other water systems & chorine is low in 20% of their samples (less than 0.2 mg/L).



FlintLegionaires...

Mark Durno

Homeland Security Advisor / Deputy Chief
Emergency Response Branch
U.S. Environmental Protection Agency
25063 Center Ridge Road
Westlake, OH 44145
440-250-1743

Legionella bacteria found in small percentage of homes tested by university researchers

DETROIT — After completing residential water tests in one-third of the 284 Flint homes in its study, the Flint Area Community Health and Environment Partnership (FACHEP) reports that it is detecting Legionella bacteria in a small percentage of some of the homes. Residents in the affected homes have been informed, as has the Michigan Department of Health and Human Services.

"To be clear, these results are not necessarily outside what would be expected in other residential water systems, so this is not necessarily a surprising finding," said Shawn McElmurry, Ph.D., associate professor of civil and environmental engineering at Wayne State University.

"Nonetheless, we committed to sharing our findings with the public, and we feel that this is noteworthy."

McElmurry also noted, "So far we've also found chlorine levels in about 20 percent of the homes to be less than current recommendations. The American Water Works Association recommends maintaining a residual chlorine level between 0.2 mg/L and 2.0 mg/L at all times. We've identified some homes that are below 0.2 mg/L."

All water contains bacteria, much of which is nonpathogenic. Chlorine is the primary chemical used to disinfect drinking water. The damage to the Flint water system has made it more difficult to maintain proper chlorination levels. It is not clear if the presence of Legionella bacteria is more common in some parts of the Flint water system than with others.

"We are looking at that possibility," said McElmurry.

Led by professors from Wayne State University and Kettering University, and funded by the Michigan Department of Health and Human Services, FACHEP is expected to have complete results of its initial testing in December. The team is working to understand the prevalence of Legionella bacteria within Flint's drinking water systems and identify conditions that increase the growth of this bacterium.

Paul Kilgore, M.D., associate professor in WSU's Eugene Applebaum College of Pharmacy and Health Sciences, noted there are many strains of Legionella bacteria. Some strains, like Legionella pneumophila serotype 1, are more commonly associated with human disease. The FACHEP team will be studying the strains found in Flint homes to better understand how these strains relate to the risk of Legionellosis.

In coordination with the Michigan Department of Health and Human Services and the Genesee County Health Department, FACHEP is investigating, but has yet to draw connections between homes with Legionella bacteria to cases of Legionnaires' disease. FACHEP has not assisted in the environmental sampling of the homes of Flint residents who have contracted Legionnaires' disease.

Researchers are also assessing residents' needs and connecting them to resources and services in the Flint area. Preliminary results show that many residents are accessing services, but they continue to be under substantial strain that has increased the need for social, nutritional and healthcare services.

FACHEP includes researchers specializing in environmental engineering, public health, and social and community support systems and includes participants from Michigan State University, the University of Michigan, Colorado State University, Henry Ford Health System, The MADE Institute and Genesee Health Systems.

"FACHEP researchers wish to express their ongoing thanks to Flint residents for their assistance with this investigation," said Laura Sullivan, professor of mechanical engineering at Kettering University.

Information about mitigating the risks to Legionella bacteria is available from the Frequently Asked Questions document on the Genese County Health Department website.

Durno, Mark

From: Durno, Mark
Sent: Tuesday, November 15, 2016 6:42 PM
To: Cupal, Suzanne; Lytle, Darren; Schock, Michael
Subject: RE: Time Sensitive: Draft press release 2 regarding Point-of-Use Filters; inviting comments

Follow Up Flag: Follow up
Flag Status: Flagged

Suzanne,

After reading this, I'm concerned about the over-emphasis on the bacterial results and how it may be perceived – especially if these are common findings. Do you have moment to discuss Wednesday morning?

Thanks,
Mark

Mark Durno
Homeland Security Advisor / Deputy Chief
Emergency Response Branch
U.S. Environmental Protection Agency
25063 Center Ridge Road
Westlake, OH 44145
440-250-1743

From: Cupal, Suzanne [mailto:scupal@gchd.us]
Sent: Tuesday, November 15, 2016 2:28 PM
To: Durno, Mark <durno.mark@epa.gov>; Lytle, Darren <Lytle.Darren@epa.gov>; Schock, Michael <Schock.Michael@epa.gov>
Subject: FW: Time Sensitive: Draft press release 2 regarding Point-of-Use Filters; inviting comments

FYI...

Suzanne Cupal, M.P.H.
Public Health Division Director
Genesee County Health Department
630 S. Saginaw Street
Suite 4
Flint, MI 48502
(810) 768-7970
scupal@gchd.us

From: Valacak, Mark
Sent: Tuesday, November 15, 2016 12:32 PM
To: LaRocco, Toni; Cupal, Suzanne; Henry, James; Johnson, M.D., Gary; Pavone, Anthony; Stoddard, Steve; Swartout, April; Howard, Kathie
Subject: Fwd: Time Sensitive: Draft press release 2 regarding Point-of-Use Filters; inviting comments

FYI

Sent from my iPhone

Begin forwarded message:

From: Nancy Love <nglove@umich.edu>
Date: November 15, 2016, 12:25:28 PM EST
To: JoLisa McDay <jmcd@cityofflint.com>, Pamela Pugh <ppugh@cityofflint.com>, "Wells, Eden (DHHS)" <WellsE3@michigan.gov>, "Beach, Michael J. (CDC/OID/NCEZID)" <mjb3@cdc.gov>, "Strockbine, Nancy (CDC/OID/NCEZID)" <nas6@cdc.gov>, jhenry@gchd.us, "McFadden, Jevon (DHHS-Contractor)" <McFaddenJ1@michigan.gov>, MVALACAK@gchd.us, Mark Adas <madas@cityofflint.com>, weaverkaren Non-Responsive
Cc: Matt Seeger <matthew.seeger@wayne.edu>, Nicole Moore <ncmoore@umich.edu>, Shawn Patrick McElmurry <s.mcelmurry@wayne.edu>, Benjamin Pauli <bpauli@kettering.edu>, Paul Evan Kilgore <paul.kilgore@wayne.edu>, Marcus Zervos <MZERVOS1@hfhhs.org>, masten@egr.msu.edu, Terese Olson <tmolson@umich.edu> Non-Responsive
Non-Responsive Chia-chen Wu <cchenwu@umich.edu>
Subject: Time Sensitive: Draft press release 2 regarding Point-of-Use Filters; inviting comments

The partners involved with the National Science Foundation-funded point-of-use filter study in Flint have drafted a new press release slated for release this week, preferably by end of day Wednesday. We welcome your input. The time frame is short, but is affected by the fact that we are releasing new results letters to participating Flint residents this week (started yesterday and will continue through tomorrow) since we completed some key analyses last Friday and we are committed to rapid dissemination.

We have had multiple discussions with many of you and know you have significant experience and knowledge to offer. I ask for your comments by 2 pm Wednesday (tomorrow), please. Your comments will be considered. I know that you understand that the ultimate decision for the version released will rest with the Universities that were awarded the grants from NSF.

Thank you,

Nancy

Nancy G. Love, Ph.D., P.E., BCEE
Borchardt and Glysson Collegiate Professor
Department of Civil and Environmental Engineering, University of Michigan
Adjunct Professor, Addis Ababa University Institute of Biotechnology, Ethiopia
Fellow: Water Environment Federation; International Water Association; Association of Environmental Engineering and Science Professors
183 EWRE Building
1351 Beal Avenue
Ann Arbor, MI 48109
Voice: (734) 763-9664
nglove@umich.edu
<http://envbiotech.engin.umich.edu/>

Durno, Mark

From: Durno, Mark
Sent: Monday, November 21, 2016 4:50 PM
To: Donnelly, Peggy; Deltoral, Miguel
Cc: Poy, Thomas; Bair, Rita; Shoven, Heather; Maraldo, Dean; Mendez, Thomas; Rogers, Joan; Russell, Diane; Geyer, Rebecca
Subject: Legionella Call
Attachments: Example of FACHEP Documents Describing LEGIONELLA sent the week of November 14.pdf; Example of FACHEP Documents Describing NO LEGIONELLA sent the week of November 14.pdf

Follow Up Flag: Follow up
Flag Status: Flagged

FYSA – The attached documents, in addition to a phone call, are how WSU communicates with residents. We're working with GCHD on comms issues associated with this....

Mark Durno

Homeland Security Advisor / Deputy Chief
Emergency Response Branch
U.S. Environmental Protection Agency
25063 Center Ridge Road
Westlake, OH 44145
440-250-1743

From: Henry, James [mailto:jhenry@gchd.us]
Sent: Monday, November 21, 2016 4:34 PM
To: Durno, Mark <durno.mark@epa.gov>
Subject: FW: Follow up regarding questions about Flint resident.

From: Shawn McElmurry [mailto:s.mcelmurry@wayne.edu]
Sent: Monday, November 21, 2016 4:07 PM
To: Henry, James; Valacak, Mark
Subject: Follow up regarding questions about Flint resident.

Attached are examples of the letters you requested. Also, per our agreement, I am providing you with a copy of the email I sent Eden earlier that discusses this case.

Shawn

From: Shawn McElmurry
Sent: Monday, November 21, 2016 3:51 PM
To: 'Wells, Eden (DHHS)' <WellsE3@michigan.gov>
Cc: Paul Kilgore <paul.kilgore@wayne.edu>; Matthew Seeger <matthew.seeger@wayne.edu>; Marcus Zervos <MZERVOS1@hfhs.org>; LyonCallo, Sarah (DHHS) <lyoncallos@michigan.gov>; Waggoner, Carrie (DHHS) <WaggonerC@michigan.gov>; Van Winkle, Jessica (DHHS) <VanWinkleJ@michigan.gov>; Horste, Ian (DHHS) <Horstel@michigan.gov>; Non-Responsive Non-Responsive Joanne Sobeck

<ab1350@wayne.edu>

Subject: RE: Citizen concern, Reminders: IRB Addendum to Update Study protocol, Monthly Reports

Hey Eden, thanks for the follow up. The addendum is on the top of my list of things to do.

With regard to the resident that called Region 5. There was a resident we called on Friday to notify they would be receiving results we sent out in a mailing last week. Attached is an example of the letter that went out. We did not share their information with anyone. Apparently this resident called Region 5, which then shared it with GCHD. The way that I know this is that Jim Henry notified me of this just after I got out of Jury Duty (I was excused, thank god!).

I called this resident today. They received their letter on Saturday. I explained what the results meant. The resident explicitly said that I **COULD NOT** share their information or sample results with the county or state health departments. Unfortunately, I cannot say more at this time.

Sincerely,
Shawn McElmurry

Shawn P. McElmurry, Ph.D., P.E.
Associate Professor
Wayne State University
Dept. of Civil and Environmental Engineering
2158 Engineering Building
5050 Anthony Wayne Dr.
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Phone: 313-577-3876
Fax: 313-577-3881
Skype: s.mcelmurry
www.eng.wayne.edu/mcelmurry

WAYNE STATE
UNIVERSITY
COLLEGE OF ENGINEERING

November 21, 2016

Dear FACHEP participant:

On [Month] [DAY], [YEAR] members of the Flint Area Community Health and Environment Partnership (FACHEP) collected water samples from your home and a swab of biofilm from your shower fixture to test for *Legionella* bacteria. Those samples were assigned a number so that we could easily track them. The water samples collected from your house were assigned the sample ID number of [XXXX].

Legionella is a waterborne bacterium that can cause Legionnaires' disease. Legionnaires' disease is contracted by breathing in water vapor that contains *Legionella* bacteria. While *Legionella* bacteria can be a source of concern, the bacteria reside in natural bodies of water and are often found in low levels in water systems considered to be operating properly. For more information about Legionnaires' disease, please see the attached Frequently Asked Questions document.

Based on our analysis, *Legionella* bacteria was detected in the following samples:

- water from your kitchen sink (Legionella species) (concentration) CFU/ml
- biofilm inside your shower (Legionella species) (concentration) CFU/ml
- water from your shower (Legionella species) (concentration) CFU/ml
- water from your hot water tank (Legionella species) (concentration) CFU/ml

The presence of free chlorine in public water distribution systems is intended to reduce the likelihood that *Legionella* and other bacteria will grow within your home water system. The concentration of free chlorine in the water entering your kitchen was found to be [XX] ppm after 5 minutes of flushing.

Additional information regarding what these results mean can be found attached. We thank you for participating in our study of Flint drinking water quality. Our research will continue, and we may contact you again in the future. If you have any questions, please do not hesitate to contact the FACHEP team (844-35-FLINT; flintpartnership@wayne.edu).

Sincerely,



Shawn P. McElmurry, PhD, PE
Principal Investigator FACHEP

DEPARTMENT OF CIVIL AND ENVIRONMENTAL ENGINEERING

5050 ANTHONY WAYNE DRIVE, DETROIT, MICHIGAN. PHONE: (313) 577-3789. FAX (313) 577-3881

Positive Results for <i>Legionella</i>		Understanding the implications for you and the water system in your home
<i>Legionella</i> (CFU/ml) colony-forming units per milliliter	Level of concern	What this means
<1	little	The detection of organisms suggests the system may permit the growth of <i>Legionella</i> .
1–9	low but increased	Depending on the health of residents, additional actions to reduce risk may be warranted.
10–99	moderately high	Improvements to the water system to reduce the growth of <i>Legionella</i> are recommended.
100–999	high	The household plumbing system should be serviced by a licensed plumber or remediation specialist to reduce the growth of <i>Legionella</i> .
≥1000	very high	This concentration is above the level known for some forms of <i>Legionella</i> to cause disease in susceptible people. Immediate steps should be taken to reduce risk to those people who are vulnerable to infection (described in FAQ). To ensure the corrective action was effective, <i>Legionella</i> analysis should be repeated after the treatment.

FACHEP Environmental Sample Analysis | Legionella Info

How were *Legionella* samples analyzed?

Household water and biofilm samples from your home were tested (1) using a standard microbiological culture method and (2) using a molecular amplification method specific for *Legionella pneumophila*. These methods are used by the US Centers for Disease Control and Prevention (CDC) and by reference laboratories for identification of *Legionella* in water samples. To verify results found in FACHEP laboratories, a subset of water samples collected were also tested by an external reference laboratory. All laboratories used to perform these analyses are certified by the CDC's Environmental Legionella Isolation Techniques Evaluation (ELITE) Program¹.

What does the amount of *Legionella* tell you?

The amount of legionella reported for your home refers to the number of "colony-forming" units (CFU) per milliliter (mL) of water – in other words, the number of living bacterium that were found in each mL of water tested capable of reproducing. While there are currently no standard protocols for residents with confirmed *Legionella* presence in their home plumbing, there are steps you can take to help reduce your risk of getting Legionnaires' disease. Please refer to the attached *Frequently Asked Questions* document for more information.

What does the amount of chlorine tell you?

Chlorine is a common disinfectant used to inhibit microbial growth in public drinking water. While some micro-organisms can sometimes survive in an environment containing chlorine², free chlorine is intended to reduce the likelihood that *Legionella* and other bacteria will grow within your home water system. The American Water Works Association recommends maintaining this chlorine level between 0.2 mg/L and 2.0 mg/L at all times in water distribution systems³.

How was chlorine measured?

The concentration of free chlorine was measured at your kitchen tap after 5 minutes of flushing. This method ensures the concentration of chlorine measured is the concentration entering your home from the water main. This concentration was determined using a widely accepted^{4,5} technique involving CHEMetrics Vacu-Vials. These vials contain a chemical called DPD (N,N Diethyl-1,4 Phenylenediamine Sulfate) that reacts with free chlorine to produce a pink to purple color; the darker the color, the greater the concentration of chlorine. The extent of color change is determined using a portable spectrophotometer and the concentration is reported in parts per million (PPM) – parts of chlorine per million units of water sample.

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² Haas, C. N., Meyer, M. A., & Paller, M. S. (1983). Microbial alterations in water distribution systems and their relationship to physical-chemical characteristics. *Journal American Water Works Association*, 475-481.

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⁴ USEPA Methods for Chemical Analysis of Water and Wastes, Method 330.5.

⁵ APHA Standard Method, 22nd ed., Method 4500-Cl G-2000

FREQUENTLY ASKED QUESTIONS ABOUT LEGIONNAIRES' DISEASE FOR FLINT RESIDENTS

WHAT IS LEGIONNAIRES' DISEASE?

Legionnaires' disease is a kind of pneumonia - an infection of the lungs. Like other types of pneumonia it can lead to complications, especially if not treated quickly.

HOW DO PEOPLE GET LEGIONNAIRES' DISEASE?

People can get Legionnaires' disease by breathing in small droplets of water (mist) that contain *Legionella* bacteria. Most people exposed to *Legionella* bacteria do not become ill.

Legionella bacteria occur naturally in freshwater, like lakes and streams. Large water systems, like those found in hospitals, hotels, and other large buildings, can sometimes grow *Legionella* bacteria, if they are not properly maintained. The most common sources of exposure from these types of buildings are:

- Air conditioning systems with cooling towers (tall, open-topped towers on top of buildings used to cool water)
- Hot tubs and spas
- Decorative fountains
- Potable (drinkable) water

In general, *Legionella* bacteria do not spread from one person to another. People don't get Legionnaires' disease from drinking water. However, people may be exposed to *Legionella* bacteria from water that 'goes down the wrong pipe' (aspiration).

WHO IS MOST AT RISK OF GETTING LEGIONNAIRE'S DISEASE?

Most people exposed to *Legionella* bacteria will not get sick. There are some factors that can increase risk of getting sick, including:

- Being a smoker, or former smoker
- Being 50 years or older
- Having a chronic lung or respiratory condition, like emphysema or chronic obstructive pulmonary disease (COPD)
- Having other medical conditions such as cancer or leukemia, diabetes, kidney failure or HIV/AIDS
- Taking drugs that reduce your ability to fight infections (i.e., steroids and other drugs. If you're not sure if the drugs you are currently taking reduce your ability to fight infection, talk to your doctor.)

Legionnaires' disease is not common in children. It's a good idea to talk to your doctor to find out if you are at increased risk for getting Legionnaires' disease.

WHEN AM I MORE LIKELY TO GET LEGIONNAIRES' DISEASE?

Legionella bacteria grow more easily in warm, stagnant (not moving) water. Although people can get Legionnaires' disease at any time of year, it is more common in summer and fall when temperatures are warmer.

WHAT ARE THE SYMPTOMS OF LEGIONNAIRES' DISEASE?

Legionnaires' disease starts with flu-like symptoms such as fever, headache, muscle aches, and chills. In some people, more serious symptoms can develop in as little as 1 to 2 days, including:

- High fever
- A cough that is usually dry but sometimes produces mucus
- Difficulty breathing
- Chest pains
- Chills
- Diarrhea

HOW IS LEGIONNAIRES' DISEASE TREATED?

Legionnaires' disease can be treated effectively using antibiotics (drugs that kill bacteria in the body). Antibiotics work best if they are given early on in the illness. In most instances, people who get sick with Legionnaires' disease will need treatment in the hospital.

IS THERE AN INCREASED RISK FOR LEGIONNAIRES' DISEASE IN GENESEE COUNTY?

Each year, people in Genesee County and other Michigan counties, as well as across the United States will get Legionnaires disease. In most years, about 9 to 11 people will get Legionnaires' disease in Genesee County. Genesee County had 91 cases of Legionnaires' disease during the summers of 2014-2015. The number of people getting Legionnaires' disease is also increasing throughout the United States.

Because Legionnaires' disease can be serious, seeking medical attention quickly is very important. Finding and reporting cases of Legionnaires' disease can also help reduce the risk of other people getting sick by finding possible sources of *Legionella* bacteria early.

WHAT SHOULD I DO IF I THINK I HAVE LEGIONNAIRES' DISEASE?

Seek medical attention immediately if you have symptoms of Legionnaires' disease. It is difficult to tell if it is Legionnaires' disease or another type of pneumonia, so make sure to tell your doctor if you think you may have been exposed to *Legionella* bacteria.

Your doctor can diagnose Legionnaires' disease by conducting x-rays and blood tests. Let your doctor know if you have recently been in a hot tub, stayed in a hotel or traveled.

SHOULD I BE CONCERNED ABOUT *LEGIONELLA* IN MY HOME?

Very few cases of Legionnaires' disease have been traced to homes. We don't know as much about *Legionella* bacteria in home water systems as we do in large building water systems. Home water systems, including water heaters, pipes, shower heads, and faucets that use water that is properly treated should be less likely to have *Legionella* bacteria.

A few studies have looked at patients who got Legionnaires' disease from their homes. From those studies, it appears that spread of *Legionella* bacteria can occur in the home but it's not clear how often this happens. *Legionella* bacteria are much less likely to contaminate the water in houses than large buildings with complex water systems. Single-family or small multiple-family residences should follow current state, county, and city guidelines for their water.

While public health experts believe the risk of getting Legionnaires' disease from a home water system is much smaller than the risk from large water systems, home owners may be able to reduce the risk further by maintaining their water systems.

WATER HEATERS: In some cases, *Legionella* bacteria have been found in residential water heaters. When found, it's more often been in electric water heaters than in gas water heaters. Regularly maintaining the water heater according to manufacturer's instructions is recommended to help reduce the risk of *Legionella* bacteria growth. Most manufacturers recommend that water heaters be flushed on an annual basis. If you cannot locate the manufacturer's instructions, seek the advice of a licensed plumber.

Water scientists, public health officials, and healthcare experts are currently discussing the risks and benefits of increasing the recommended water heater temperature from 120°F to 130°F which may reduce the risk of *Legionella* bacteria growing. **However, because of the risk of scalding—or being burned by hot water—this is not currently being recommended.** Updated guidelines regarding water heater management for risk prevention will be provided should recommendations change.

SHOWERS: Because they remain damp, shower heads could hold *Legionella* bacteria. Removing the shower head, manually cleaning it to remove scale and sediment, and soaking it in a mixture of 1 tablespoon of household bleach to 1 gallon of water for about 2 hours will disinfect the shower head.

HUMIDIFIERS: Some homes have whole house humidifiers. You should clean and disinfect humidifiers regularly according to manufacturer's directions. Always unplug the humidifier first. Clean the inside of the humidifier per the manufacturer's instructions, using a mixture such as 1 tablespoon of household bleach to 1 gallon of water, and dry. Thoroughly clean the outside of the humidifier before and after storage.

CPAP Machines and nebulizers should use distilled water and be cleaned per manufacturer's recommendations. If you cannot locate the manufacturer's instructions, the healthcare equipment supplier can provide them.

HOW CAN LEGIONNAIRES' DISEASE BE PREVENTED?

Making sure that hot tubs and warm pools have the right disinfectant (i.e., chlorine) levels is important for killing *Legionella* bacteria. These disinfectant levels can be hard to maintain when water temperature is high. You do not need a special filter to remove *Legionella* bacteria in your drinking water.

Avoiding smoking is the single most important thing you can do to lower your risk of infection. Smoking increases the chances that you'll develop Legionnaires' disease if you're exposed to *Legionella* bacteria.

There are no vaccines that can help protect you from Legionnaires' disease. However, there are vaccines available that can prevent other types of pneumonia. Two types of vaccines that are especially important for preventing pneumonia are the pneumococcal and flu vaccines.

All adults 65 years or older should get both kinds of pneumococcal vaccines. And adults younger than 65 with certain health conditions or who smoke are also recommended pneumococcal vaccination. Everyone 6 months or older should get an annual flu vaccine.

Information about maintaining home systems may be found here:

<http://www.hvac.com/resource-center/humidifiers/articles/how-to-clean-a-whole-house-humidifier>

More information about Legionnaires' disease is available from:

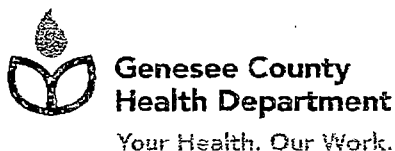
http://www.gchd.us/legionnaires_disease_resources.php

<http://www.cdc.gov/legionella/index.html>

<http://www.osha.gov/dts/osta/otm/legionnaires/faq.html>

<http://www.nyc.gov/html/doh/html/diseases/cdlegi.shtml>

http://www.phila.gov/health/pdfs/diseases/Legionnaires_FAQ_2011.pdf



WAYNE STATE
UNIVERSITY
COLLEGE OF ENGINEERING

November 21, 2016

Dear FACHEP participant:

On ~~Month DAY YEAR~~ members of the Flint Area Community Health and Environment Partnership (FACHEP) collected water samples from your home and a swab of biofilm from your shower fixture to test for *Legionella* bacteria. Those samples were assigned a number so that we could easily track them. The water samples collected from your house were assigned the sample ID number of ~~XXXX~~.

Legionella is a waterborne bacterium that can cause Legionnaires' disease. Legionnaires' disease is contracted by breathing in water vapor that contains *Legionella* bacteria. While *Legionella* bacteria can be a source of concern, the bacteria reside in natural bodies of water and are often found in low levels in water systems considered to be operating properly. For more information about Legionnaires' disease, please see the attached Frequently Asked Questions document.

Legionella bacteria was not found in your water samples. This does not mean that the samples were free of *Legionella*. Rather, the results indicate that the number of *Legionella* in your samples were below the amount that we are able to detect with our tests.

The presence of free chlorine in public water distribution systems is intended to reduce the likelihood that *Legionella* and other bacteria will grow within your home water system. The concentration of free chlorine in the water entering your kitchen was found to be ~~XX~~ ppm after 5 minutes of flushing.

Additional information regarding what these results mean can be found attached. We thank you for participating in our study of Flint drinking water quality. Our research will continue, and we may contact you again in the future. If you have any questions, please do not hesitate to contact the FACHEP team (844-35-FLINT; flintpartnership@wayne.edu).

Sincerely,



Shawn P. McElmurry, PhD, PE
Principal Investigator FACHEP

DEPARTMENT OF CIVIL AND ENVIRONMENTAL ENGINEERING

5050 ANTHONY WAYNE DRIVE, DETROIT, MICHIGAN. PHONE: (313) 577-3789, FAX (313) 577-3881

Positive Results for <i>Legionella</i>		
Understanding the implications for you and the water system in your home		
<i>Legionella</i> (CFU/ml) colony-forming units per milliliter	Level of concern	What this means
<1	little	The detection of organisms suggests the system may permit the growth of <i>Legionella</i> .
1–9	low but increased	Depending on the health of residents, additional actions to reduce risk may be warranted.
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FACHEP Environmental Sample Analysis | Legionella Info

How were *Legionella* samples analyzed?

Household water and biofilm samples from your home were tested (1) using a standard microbiological culture method and (2) using a molecular amplification method specific for *Legionella pneumophila*. These methods are used by the US Centers for Disease Control and Prevention (CDC) and by reference laboratories for identification of *Legionella* in water samples. To verify results found in FACHEP laboratories, a subset of water samples collected were also tested by an external reference laboratory. All laboratories used to perform these analyses are certified by the CDC's Environmental Legionella Isolation Techniques Evaluation (ELITE) Program¹.

What does the amount of *Legionella* tell you?

The amount of legionella reported for your home refers to the number of "colony-forming" units (CFU) per milliliter (mL) of water – in other words, the number of living bacterium that were found in each mL of water tested capable of reproducing. While there are currently no standard protocols for residents with confirmed *Legionella* presence in their home plumbing, there are steps you can take to help reduce your risk of getting Legionnaires' disease. Please refer to the attached *Frequently Asked Questions* document for more information.

What does the amount of chlorine tell you?

Chlorine is a common disinfectant used to inhibit microbial growth in public drinking water. While some micro-organisms can sometimes survive in an environment containing chlorine², free chlorine is intended to reduce the likelihood that *Legionella* and other bacteria will grow within your home water system. The American Water Works Association recommends maintaining this chlorine level between 0.2 mg/L and 2.0 mg/L at all times in water distribution systems³.

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FREQUENTLY ASKED QUESTIONS ABOUT LEGIONNAIRES' DISEASE FOR FLINT RESIDENTS

WHAT IS LEGIONNAIRES' DISEASE?

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HOW DO PEOPLE GET LEGIONNAIRES' DISEASE?

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WHO IS MOST AT RISK OF GETTING LEGIONNAIRE'S DISEASE?

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- Taking drugs that reduce your ability to fight infections (i.e., steroids and other drugs. If you're not sure if the drugs you are currently taking reduce your ability to fight infection, talk to your doctor.)

Legionnaires' disease is not common in children. It's a good idea to talk to your doctor to find out if you are at increased risk for getting Legionnaires' disease.

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- Diarrhea

HOW IS LEGIONNAIRES' DISEASE TREATED?

Legionnaires' disease can be treated effectively using antibiotics (drugs that kill bacteria in the body). Antibiotics work best if they are given early on in the illness. In most instances, people who get sick with Legionnaires' disease will need treatment in the hospital.

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More information about Legionnaires' disease is available from:

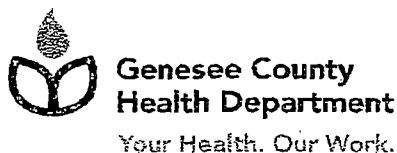
http://www.gchd.us/legionnaires_disease_resources.php

<http://www.cdc.gov/legionella/index.html>

<http://www.osha.gov/dts/osta/otm/legionnaires/faq.html>

<http://www.nyc.gov/html/doh/html/diseases/cdlegi.shtml>

http://www.phila.gov/health/pdfs/diseases/Legionnaires_FAQ_2011.pdf



Durno, Mark,

From: Durno, Mark
Sent: Tuesday, November 22, 2016 4:34 PM
To: Shawn McElmurry
Subject: Re: Legionella Detect

Follow Up Flag: Follow up
Flag Status: Flagged

Thanks for the knowledge Shawn - good to hear that you all are walking the residents through this. Look forward to meeting next week.

Happy Thanksgiving!
Mark

Sent from my iPhone

> On Nov 21, 2016, at 6:47 PM, Shawn McElmurry <s.mcelmurry@wayne.edu> wrote:

>

> Hey Mark, thanks for reaching out. I have become aware of a resident that apparently reached out to Region 5 concerning results we provided to her. Last week we did send out the results to multiple residents and it is my understanding that this resident contacted EPA immediately after we relayed our results to them.

>

> When we receive a positive results, we do call the resident. We always call the resident prior to providing written results. It takes us a little time to get the letters out so most times we call the resident long before they receive the letter. Last week, we did finalize a bunch of results that we were unable to quantify or confirm if they contained legionella species. These results were classified as "suspected Legionella species" (i.e. bacteria we were able to culture bacteria on legionella selective plates, but not able to identify using MALDI). One of the major reasons why these samples could not be quantified or identified, is due to enormous overgrowth on the selective plates. This is something that we have noticed in Flint, generally there seems to be a lot of biological growth potential within the system (e.g. high HPC counts).

>

> Sorry for the long winded response. Short answer: yes, we notify residents by phone call after learning of a positive test. We then mail out results (attached are examples of the material we mail out). There have been a few residents that we have not been able to connect with so they may have received the letter without talking with us...but these are a small minority of the positive samples.

>

> Also, Jim Henry has reached out to me asking if we could get together next week while you are in Flint. That would be excellent. I will coordinate with him to find a time so we can discuss further. Have a happy Thanksgiving.

>

> Shawn

>

> From: Durno, Mark [mailto:durno.mark@epa.gov]

> Sent: Monday, November 21, 2016 4:26 PM

> To: Shawn McElmurry <s.mcelmurry@wayne.edu>

> Subject: FW: Legionella Detect

>

> Shawn,

>

> See below – a resident involved in your sampling program reached out to us about concerns over her data. Since her questions were medical in nature, we've referred this to the Health Department. Just wanted you to be aware.

>

> Based on what you've discussed in the past, I wanted to confirm that your team meets with residents to explain the data and what it means. Is that correct?

>

> Thanks,

> Mark

>

>

> Mark Durno

> Homeland Security Advisor / Deputy Chief Emergency Response Branch

> U.S. Environmental Protection Agency

> 25063 Center Ridge Road

> Westlake, OH 44145

> 440-250-1743

> Sent from my iPhone

>

> On Nov 19, 2016, at 4:27 PM, Deltoral, Miguel <deltoral.miguel@epa.gov<mailto:deltoral.miguel@epa.gov>> wrote:

> I just listened to a voicemail from [Non-Responsive] a bit ago. She is a Flint resident and she left me the VM last night, so I called her back just now after listening to her VM. The following is the information provided:

>

> Wayne State (WS) tested her home for legionella on October 15, 2016. According to Ms. [Non-Responsive] they tested her bathroom, kitchen and the hot water tank in her basement. She called me after she received a call from WS yesterday with her results. She said she was informed that WS found legionella bacteria in her home in the shower water sample. Today she also received a letter with the results from WS today and sent me a copy (attached). She also sent me a photo of her abdomen with what appear to be rashes, but I do not feel comfortable attaching that to this email, so please advise on what I am to do with that photograph.

>

> The letter is a bit confusing as to what exactly was found (see excerpt below), but Ms. [Non-Responsive] stated that they told her they found legionella bacteria.

>

> Based on our analysis, Legionella bacteria was detected in the following samples:

> Location: Shower water · Type: Possible Legionella Species (not Legionella pneumophila) · Concentration (CFU/ml): Not Determined

>

> The letter states that the chlorine was 1.5 ppm after a five minute flush. According to Ms. [Non-Responsive] the WS representative asked if they could come back out to do follow-up sampling. She informed them that she wanted the written results before she would allow them to come back in and was told she would receive the results today, which [Non-Responsive] also stated that WS had notified the health department of the result, but has not heard from the health department yet.

>

> I am not sure who this should go to for follow-up and if you need me to do anything give me a call anytime. I did assure Ms. [Non-Responsive] that we would keep her informed regarding any follow-up. I am not sure why it would take over a month to get the results to Ms. [Non-Responsive]. It seems like a very long time considering the potential consequences. Ms. [Non-Responsive]'s contact info is below.

>

[Non-Responsive]

> Flint, MI

> [Non-Responsive]

>

> [FLINT]

> Miguel A. Del Toral

> Regulations Manager, GWDWB

> U.S. EPA Region 5 (WG-15J)

> 77 West Jackson Blvd

> Chicago, IL 60604

> W: (312) 886-5253

Non-Responsive

> <Wayne State Letter to [REDACTED] Nov 14 2016 Page 2.png>

> <Wayne State Letter to [REDACTED] Nov 14 2016 Page 1.png>

> <Example of FACHEP Documents Describing LEGIONELLA sent the week of

> November 14.pdf> <Example of FACHEP Documents Describing NO LEGIONELLA

> sent the week of November 14.pdf>

Durno, Mark

From: Durno, Mark
Sent: Monday, November 28, 2016 5:27 PM
To: Wells, Eden (DHHS); feighnerb@michigan.gov; Robert Bincsik; Mark Adas; Krisztian, George (DEQ); Cupal, Suzanne; Shawn Patrick McElmurry; JoLisa McDay; Mark Valacak; LyonCallo, Sarah (DHHS); Henry, James
Cc: Creagh, Keith (DNR); Benzie, Richard (DEQ); Geyer, Rebecca; McFadden; Jevon D. (CDC/OPHPR/DSLRL); Ross, Anthony
Subject: University Study and Legionnaire's Disease

Follow Up Flag: Follow up
Flag Status: Flagged

Folks,

Per our e-mail exchanges last week, let plan to meet this Friday at 3:30 pm at the EPA office at City Hall in Flint. Our goal is to make were all on the same page, especially now that residents are receiving data and may come to any of us with questions. Shawn can give us an update on their work with the Legionella assessment, then we can facilitate a discussion on communication and potential action items. I've sent this to several people in each organization – please try to ensure at least one person can attend. We'll set up a call in number as well. Look for a calendar invite with details later.

Thanks,
Mark

Mark Durno
Homeland Security Advisor / Deputy Chief
Emergency Response Branch
U.S. Environmental Protection Agency
25063 Center Ridge Road
Westlake, OH 44145
440-250-1743

Durno, Mark

From: Durno, Mark
Sent: Monday, December 05, 2016 3:51 PM
To: Michael, Gretchen (OS/ASPR/COO); Grantham, Nancy
Cc: Nowotarski, Allison; Connors, Sandra; Ross, Anthony; Geyer, Rebecca; Johnson, Mark; Lytle, Darren
Subject: FW: FACHEP Talkinn points
Attachments: FACHEP Talking points.docx

Follow Up Flag: Follow up
Flag Status: Flagged

FYI – These are good. Gretchen – please forward to Dr. Lurie if you are OK with them.

Mark Durno

Homeland Security Advisor / Deputy Chief
Emergency Response Branch
U.S. Environmental Protection Agency
25063 Center Ridge Road
Westlake, OH 44145
440-250-1743

From: Matthew Seeger [mailto:matthew.seeger@wayne.edu]
Sent: Monday, December 05, 2016 3:44 PM
To: Durno, Mark <durno.mark@epa.gov>
Cc: Nancy Love <nglove@umich.edu>; Zervos, Marcus <MZERVOS1@hfhs.org>; Paul Kilgore <paul.kilgore@wayne.edu>; Shawn McElmurry <s.mcelmurry@wayne.edu>; Wells, Eden (DHHS) <WellsE3@michigan.gov>; ppugh@cityofflint.com; jhenry@gchd.us
Subject: FACHEP Talkinn points

Hi Mark,

Here are the talking points we have developed about FACHEP. These have been vetted by our group and there is general consensus.

Please let me know if you need anything else.

Matt Seeger



College of Fine, Performing
and Communication Arts

Matthew W. Seeger, Ph.D.
Professor and Dean
College of Fine, Performing & Communication Arts
5104 Gullen Mall - The Linsell House
Wayne State University
Detroit, MI 48202

Phone: (313) 577-5342

FAX: (313) 577-5355

Web: <http://www.cfpc.wayne.edu/>

Please reply to: Matthew.Seeger@Wayne.edu



**Flint Area Community Health and Environmental Partnership
Talking points
December**

Investigations of the Legionnaires outbreak and any possible association with the changes in the Flint water system are ongoing.

The Flint Area Community Health and Environmental Partnership, lead by researchers at Wayne State University, are sampling water in resident's home.

Some 185 homes have been sampled and a small percentage, just over 10%, have shown some presence of one or more strains of the Legionella bacteria.

These are preliminary findings and when FACHEP does detect bacteria, residents and public health officials are notified immediately and appropriate steps taken.

This includes cleaning and disinfecting faucets and shower heads, flushing water systems, and other maintenance of plumbing systems.

FACHEP also conducts follow up testing in homes that have shown the presence of Legionella.

It is very important to remember that there are many (hundreds) of strains of Legionella bacteria and only a very few have been associated with human disease.

While some amount of bacteria is always present in treated municipal water, the goal of water treatment is to kill or remove those that may cause disease. In a small number of cases the FACHEP team has identified bacteria that may be associated with illness.

The FACHEP group is continuing its investigation and working with residents of Flint, Genesee County Health Department, CDC, EPA and MDHSS and as more information is available it will be provided.

Durno, Mark

From: Durno, Mark
Sent: Wednesday, December 07, 2016 10:09 AM
To: Shawn McElmurry
Subject: RE: Action Levels - Bacteria

Follow Up Flag: Follow up
Flag Status: Flagged

Thanks Shawn – we'll definitely look into this with CDC to see if any other actions would be recommended.

Mark Durno

Homeland Security Advisor / Deputy Chief
Emergency Response Branch
U.S. Environmental Protection Agency
25063 Center Ridge Road
Westlake, OH 44145
440-250-1743

From: Shawn McElmurry [mailto:s.mcelmurry@wayne.edu]
Sent: Monday, December 05, 2016 4:38 PM
To: Durno, Mark <durno.mark@epa.gov>
Cc: Paul Kilgore <paul.kilgore@wayne.edu>; Marcus Zervos <MZERVOS1@hfhs.org>; Nancy Love <nglove@umich.edu>; Matthew Seeger <matthew.seeger@wayne.edu>; Michele Swanson <mswanson@umich.edu>; Susan Masten <masten@egr.msu.edu>; Wells, Eden (DHHS) <WellsE3@michigan.gov>
Subject: RE: Action Levels - Bacteria

Hey Mark, thanks for the follow up. Yes, we have been giving this much thought and have discussed many of these options. We, do recommend residents consider turning up their hot water tank and cleaning their shower head if legionella is found in these locations. We also always recommend flushing to maintain adequate chlorine levels throughout the home water system. Perhaps we should consider making a more specific recommendation as you suggest. Flush hot water for 5 minutes daily? We really don't want to make recommendations unless there is scientific evidence that they will have a positive impact. Any guidance you or others at EPA, CDC or elsewhere have is certainly welcome.

What is more difficult for us has been what to do when measurable concentrations of legionella are entering the home as it is unlikely the resident can influence water quality entering the home.

Thanks for the feedback. I'll try to review the document you just sent tonight. As indicated previously, we welcome any guidance you or other legionella experts have would be greatly appreciated.

Thanks,
Shawn

Ps. Note, I have copied others on my team and will discuss with them at our next group meeting.

From: Durno, Mark [mailto:durno.mark@epa.gov]
Sent: Monday, December 5, 2016 4:22 PM
To: Shawn McElmurry <s.mcelmurry@wayne.edu>; Wells, Eden (DHHS) <WellsE3@michigan.gov>
Subject: Action Levels - Bacteria

Shawn/Eden,

During our discussions last Friday, Shawn asked the question about action levels for legionella bacteria. I dealt with this issue during the anthrax cleanups back in 2001-04. Take a look at the multi-agency paper, attached. Bottom line, because some people are more susceptible to disease than others, our action standard was no-growth on environmental samples. Although this is a very difference situation, I believe that from an follow-up stand-point, a positive hit triggers action. With living organisms, a low hit this week, could turn into a high hit down the road. Given this, for any re-assessment that WSU will conduct after a positive hit, would it make sense to have the resident take some interim action between sampling events? For example, flushing their hot and cold water lines for several minutes every day and cleansing their fixtures before the next sampling event. We may learn that some simple actions can make a difference in these homes. It may be beneficial to engage the CDC experts on this or other action ideas.

Just thinking out loud....

Feel free to give me a shout if you'd like to discuss.

Mark

Mark Durno

Homeland Security Advisor / Deputy Chief
Emergency Response Branch
U.S. Environmental Protection Agency
25063 Center Ridge Road
Westlake, OH 44145
440-250-1743

Durno, Mark

From: Durno, Mark
Sent: Friday, January 06, 2017 10:02 AM
To: Johnson, Mark; Geyer, Rebecca; Russell, Diane; Deltoral, Miguel
Subject: FW: Questions regarding UM Filter Study Community Risk Communications

Follow Up Flag: Follow up
Flag Status: Flagged

For awareness.....

md

Mark Durno
Homeland Security Advisor / Deputy Chief
Emergency Response Branch
U.S. Environmental Protection Agency
25063 Center Ridge Road
Westlake, OH 44145
440-250-1743

From: Cupal, Suzanne [mailto:scupal@gchd.us]
Sent: Thursday, January 05, 2017 12:48 PM
To: Durno, Mark <durno.mark@epa.gov>
Subject: FW: Questions regarding UM Filter Study Community Risk Communications

See below...

Suzanne Cupal, M.P.H.
Public Health Division Director
Genesee County Health Department
630 S. Saginaw Street
Suite 4
Flint, MI 48502
(810) 768-7970
scupal@gchd.us

From: Shawn McElmurry [mailto:s.mcelmurry@wayne.edu]
Sent: Thursday, January 05, 2017 12:46 PM
To: Wells, Eden (DHHS); Nancy Love
Cc: Zervos, Marcus; LyonCallo, Sarah.(DHHS); Paul Kilgore; Matthew Seeger; Cupal, Suzanne; Valacak, Mark; Henry, James
Subject: RE: Questions regarding UM Filter Study Community Risk Communications

Hey Eden, thanks for the email. Very important questions you raise and these are certainly questions we are trying to resolve, from our perspective at least, as quickly as possible. Below are my quick responses to your questions. I realize this isn't as definitive as we would all like, but it's an honest assessment of where we are at. Happy to discuss more on Friday.

Will you be in Chicago Tuesday?

Shawn

From: Wells, Eden (DHHS) [mailto:WellsE3@michigan.gov]

Sent: Thursday, January 05, 2017 11:59 AM

To: Shawn McElmurry <s.mcelmurry@wayne.edu>; Nancy Love <nglove@umich.edu>

Cc: Zervos, Marcus <mzervos1@hfhs.org>; LyonCallo, Sarah (DHHS) <lyoncallos@michigan.gov>; Paul Kilgore <paul.kilgore@wayne.edu>; Matthew Seeger <matthew.seeger@wayne.edu>; Cupal, Suzanne (scupal@gchd.us) <scupal@gchd.us>; Valacak, Mark <MVALACAK@gchd.us>; Henry, James <jhenry@gchd.us>

Subject: Questions regarding UM Filter Study Community Risk Communications

Importance: High

Dear Nancy and Shawn,

I raised the issue on Tuesday with Paul, had not heard back, but I thought that I would loop you in, Nancy, as next week there are a number of meetings occurring in Chicago and the Flint Community, and I want to be clear on a couple of issues beforehand. In addition, I do see that you all are beginning to develop abstracts and public/academic presentations based on the same information you presented to Flint on December 14. In reviewing your slides earlier in the week, I raised some questions. Please see my highlighted area below, and I am looping GCHD as well as the communications affects their agency also. ***Please address my questions below ASAP as these have important ramifications to public health and ongoing risk communications, and we can work with our communications teams:***

1. Again, it seems there is an intimation that your findings indicate that there is a current threat to public health. Is there (again, see my highlighted area below, but are you linking your findings to the resident reporting of skin or respiratory illnesses?) **If so:**
 - a. What is the threat? ((is it more than what we already know about bacteria and filters from past studies in other areas of the state and country?) - *Unknown, but we are still investigating.*
 - b. Is the threat isolated to Flint, or to all users of filters in any county or state? *Unknown. We have additional data from other water systems (Detroit and Ann Arbor) - it appears there are some differences (e.g. preliminary results of live cell counts appear to be greater in Flint) but this work is ongoing and we cannot yet draw final conclusions.*
2. Are you making recommendations to flush for one minute at this time in Flint? **If so:**
 - a. Should this be done by any user of a filter anywhere in MI? - *Based on our preliminary evidence, we believe that residents in Flint and elsewhere should flush their filters for at least 30 seconds prior to use. This is longer than what the manufacturers currently recommend but is consistent with US EPA recommendation for PoU devices*
 - b. What risk to health is being mitigated by the flushing? - *Unknown; however, we do know that cell counts (HPC and flow cytometry) go down with flushing.*
 - c. Is there a communications plan for such a recommendation? - *We are currently developing a fact sheet that we will share with our public health and community partners before it is released.*

Thank you for consideration of a rapid response—again, I am being approached by others about potential public health implications being raised. We can do a call if need be. I will be following up shortly.

Eden

Eden V. Wells, MD, MPH, FACPM
Chief Medical Executive
Michigan Department of Health and Human Services

P.O Box 30195
Lansing, MI 48909
(517)-284-4998

From: Paul Kilgore [mailto:paul.kilgore@wayne.edu]
Sent: Tuesday, January 03, 2017 3:01 PM
To: Wells, Eden (DHHS) <WellsE3@michigan.gov>; LyonCallo, Sarah (DHHS) <lyoncallos@michigan.gov>
Cc: Zervos, Marcus <mzervos1@hfhs.org>; Shawn McElmurry <s.mcelmurry@wayne.edu>; Abdulbaset Salim <asalim@med.wayne.edu>
Subject: Re: Descriptive abstract—anticipating submission to CSTE

Hi Eden thank you. For your question on slide 21, I will confer with Shawn and Mark. The CSTE abstract will focus on descriptive presentation of disease trends and entirely on Legionnaires' disease trends. So this paper is very simple and does not include analysis to look at associations that you note below. Thanks so much for your thoughtful questions.

Paul E. Kilgore, MPH, MD
Associate Professor, Department of Pharmacy Practice
Director of Research, Department of Pharmacy Practice
Eugene Applebaum College of Pharmacy and Health Sciences
Adjunct Professor, Department of Family Medicine and Public Health Sciences, School of Medicine
Wayne State University

Address:
259 Mack Ave., Room 2156
Detroit, Michigan 48201
Phone: (313) 577-1215
Cell: (248) 403-0275
Fax: (313) 577-5369
Skype: drpaulwsu

From: Wells, Eden (DHHS) <WellsE3@michigan.gov>
Sent: Tuesday, January 3, 2017 2:18:15 PM
To: LyonCallo, Sarah (DHHS); Paul Kilgore
Cc: Zervos, Marcus; Shawn McElmurry; Abdulbaset Salim
Subject: RE: Descriptive abstract—anticipating submission to CSTE

I had a questions from your slide set from the open meeting slides—

It states on slide 21 that “many residents in Flint continue to report skin and lung illnesses.”

Do you have data to support this, and, if there is, how does it relate regarding either your Legionella or Enterbactereciae filters studies? In other words, a question I would have is are there increased hospitalizations for pneumonia (above normal seasonal trends), or evidence of any bacteria-related skin diseases? If you have any such information please advise and it would need to be in the abstract, I would think if you state the same in your abstract—It seems you are trying to draw a direct link of your findings to current disease activity in the studied community, and I had not been aware there was a direct link.

Studies to date have not shown any evidence of bacterial skin diseases, or epidemiology consistent with water- or filter-borne Shigella, to my knowledge.

That would be important regarding how you address this potential association in your abstract.

Eden

Eden V. Wells, MD, MPH, FACPM
Chief Medical Executive
Michigan Department of Health and Human Services
P.O. Box 30195
Lansing, MI 48909
(517)-284-4998

From: LyonCallo, Sarah (DHHS)
Sent: Tuesday, January 03, 2017 1:56 PM
To: Paul Kilgore <paul.kilgore@wayne.edu>; Wells, Eden (DHHS) <WellsE3@michigan.gov>
Cc: Zervos, Marcus <mzervos1@hfhs.org>; Shawn McElmurry <s.mcelmurry@wayne.edu>; Abdulbaset Salim <asalim@med.wayne.edu>
Subject: RE: Descriptive abstract—anticipating submission to CSTE

Hi Paul

This will be answered in the abstract but do you mean data from December public meeting materials? Or what you presented to the student class at UM?

Sarah

From: Paul Kilgore [<mailto:paul.kilgore@wayne.edu>]
Sent: Tuesday, January 03, 2017 12:46 PM
To: LyonCallo, Sarah (DHHS) <lyoncallos@michigan.gov>; Wells, Eden (DHHS) <WellsE3@michigan.gov>
Cc: Zervos, Marcus <mzervos1@hfhs.org>; Shawn McElmurry <s.mcelmurry@wayne.edu>; Abdulbaset Salim <asalim@med.wayne.edu>
Subject: Descriptive abstract---anticipating submission to CSTE

Hi Sarah and Eden

Wanted to get heads up to you regarding submission of abstract for the CSTE meeting. Will send the draft to you this afternoon. It will focus on the info sent earlier in Dec 2016 in the Excel file and PPT figures. Thank you.

Paul E. Kilgore, MPH, MD
Associate Professor, Department of Pharmacy Practice

Director of Research, Department of Pharmacy Practice
Eugene Applebaum College of Pharmacy and Health Sciences
Adjunct Professor, Department of Family Medicine and Public Health Sciences, School of Medicine
Wayne State University

Address:

259 Mack Ave., Room 2156

Detroit, Michigan 48201

Phone: (313) 577-1215

Cell: (248) 403-0275

Fax: (313) 577-5369

Skype: drpaulwsu

Durno, Mark

From: Durno, Mark
Sent: Thursday, December 22, 2016 3:32 PM
To: Wells, Eden (DHHS)
Subject: FW: Action Levels - Bacteria
Attachments: FACHEP Action Plan for Communicating Results.pdf; FACHEP Participant Notification Letter.pdf; FACHEP Procedure for Low Chlorine Levels.pdf; FACHEP Checklist for Discussing Results.pdf; FACHEP Legionella Positive Follow-up Contact Form.pdf; FACHEP Legionella Assessment Talking points.docx; Example of FACHEP Documents Describing LEGIONELLA sent the week of November 14.pdf; Example of FACHEP Documents Describing NO LEGIONELLA sent the week of November 14.pdf; Slides for University Collaborators Open House - DEC 14, 5-30pm.pdf; Handout for Public Meeting - 14 DEC 2016.pdf

Follow Up Flag: Follow up
Flag Status: Flagged

Per my last message....

Happy Holidays!

Mark Durno

Homeland Security Advisor / Deputy Chief
Emergency Response Branch
U.S. Environmental Protection Agency
25063 Center Ridge Road
Westlake, OH 44145
440-250-1743

From: Durno, Mark
Sent: Tuesday, December 20, 2016 3:07 PM
To: Johnson, Mark <johnson.mark@epa.gov>
Cc: Geyer, Rebecca <geyer.rebecca@epa.gov>
Subject: FW: Action Levels - Bacteria

Mark,

As discussed yesterday, can you reach out to CDC's Legionella and Waterborne Disease experts to get input on the bulleted items below? Maybe we could have a call with them to discuss sometime soon... Attached are all the communications, action item, and presentation materials that we've received to date:

-
- Review of FACHEP documents and communication approach
 - Seek guidance on Wayne State's request for an "action level"
 - See guidance on action items when legionella is detected

Thanks!

Mark Durno

Homeland Security Advisor / Deputy Chief
Emergency Response Branch
U.S. Environmental Protection Agency

25063 Center Ridge Road
Westlake, OH 44145
440-250-1743

From: Durno, Mark [<mailto:durno.mark@epa.gov>]

Sent: Monday, December 19, 2016 9:17 AM

To: Wells, Eden (DHHS) <WellsE3@michigan.gov>; Collins, Jim (DHHS) <CollinsJ12@michigan.gov>; McFadden, Jevon (DHHS-Contractor) <McFaddenJ1@michigan.gov>; LyonCallo, Sarah (DHHS) <lyoncallos@michigan.gov>

Cc: Johnson, Mark <johnson.mark@epa.gov>

Subject: RE: Action Levels - Bacteria

Eden,

Yes – we'll reach out to HHS & CDC for expert support. We'll coordinate on the following:

- Review of FACHEP documents and communication approach
- Seek guidance on Wayne State's request for an "action level"
- See guidance on action items when legionella is detected

Mark J – I'll give you a call later today.

Mark

Mark Durno

Homeland Security Advisor / Deputy Chief
Emergency Response Branch
U.S. Environmental Protection Agency
25063 Center Ridge Road
Westlake, OH 44145
440-250-1743

From: Wells, Eden (DHHS) [<mailto:WellsE3@michigan.gov>]

Sent: Monday, December 19, 2016 9:06 AM

To: Collins, Jim (DHHS) <CollinsJ12@michigan.gov>; McFadden, Jevon (DHHS-Contractor) <McFaddenJ1@michigan.gov>; LyonCallo, Sarah (DHHS) <lyoncallos@michigan.gov>

Cc: Durno, Mark <durno.mark@epa.gov>; Johnson, Mark <johnson.mark@epa.gov>

Subject: RE: Action Levels - Bacteria

Mark and Mark,

We would like a call to get an understanding of the "action level" for Legionella response brought up by our Wayne State researchers at a meeting earlier this month, who are working on Legionella environmental sampling in homes and high risk buildings in Flint—hopefully soon engaging control sites outside of Flint and from another county.

However, per the Protective Order currently in place, I am not sure we can engage our Legionella partners at CDC yet. Perhaps Mark Durno, could you carry on this discussion with Mark Johnson and perhaps the Legionella Team there at CDC on this issue for now?

Eden

Eden V. Wells, MD, MPH, FACPM
Chief Medical Executive

Michigan Department of Health and Human Services
P.O. Box 30195
Lansing, MI 48909
(517)-284-4998

From: Collins, Jim (DHHS)
Sent: Monday, December 19, 2016 8:49 AM
To: Wells, Eden (DHHS) <WellsE3@michigan.gov>; McFadden, Jevon (DHHS-Contractor) <McFaddenJ1@michigan.gov>; LyonCallo, Sarah (DHHS) <lyoncallos@michigan.gov>
Subject: RE: Action Levels - Bacteria

Eden, Jevon, and Sarah,

I agree that we should engage CDC on this.

While a standard set of recommendations can be shared, I think we need to keep in mind a couple of things that I've heard from our CDC colleagues. First, that a 12% find rate for legionella is well within the literature and there was no difference inside or outside Flint (not clear on whether that is an appropriate surrogate for on/off Flint municipal water). This is also in the context of a very aggressive testing strategy being employed (I think) at the households. Second, CDC has told us that there is a paucity (at best) linking residential water supply to outbreaks of legionellosis with the residence as a source. I also think that we all know that anthrax and legionella are very different bugs. Just my two cents.

So, while I agree that they should go ahead and share some standards for mitigation, I'm cautious about how this information has been and will be presented.

Jim

From: Wells, Eden (DHHS)
Sent: Sunday, December 18, 2016 12:19 PM
To: Durno, Mark <durno.mark@epa.gov>; McFadden, Jevon (DHHS-Contractor) <McFaddenJ1@michigan.gov>; LyonCallo, Sarah (DHHS) <lyoncallos@michigan.gov>; Collins, Jim (DHHS) <CollinsJ12@michigan.gov>
Subject: Fw: Action Levels - Bacteria

Thank you so much, Mark,

Looping in Dr. McFadden, our State Epi and our CD Division Director. I concur on using a no-growth standard, but they may have some other input as well.

Eden

Eden V. Wells, MD, MPH, FACPM
Chief Medical Executive
Michigan Department of Health and Human Services
Lansing, MI
Phone: 517-284-4020

wellse3@michigan.gov

From: Durno, Mark <durno.mark@epa.gov>
Sent: Monday, December 5, 2016 4:21 PM
To: Shawn Patrick McElmurry; Wells, Eden (DHHS)
Subject: Action Levels - Bacteria

Shawn/Eden,

During our discussions last Friday, Shawn asked the question about action levels for legionella bacteria. I dealt with this issue during the anthrax cleanups back in 2001-04. Take a look at the multi-agency paper, attached. Bottom line, because some people are more susceptible to disease than others, our action standard was no-growth on environmental samples. Although this is a very difference situation, I believe that from an follow-up stand-point, a positive hit triggers action. With living organisms, a low hit this week, could turn into a high hit down the road. Given this, for any re-assessment that WSU will conduct after a positive hit, would it make sense to have the resident take some interim action between sampling events? For example, flushing their hot and cold water lines for several minutes every day and cleansing their fixtures before the next sampling event. We may learn that some simple actions can make a difference in these homes. It may be beneficial to engage the CDC experts on this or other action ideas.

Just thinking out loud....

Feel free to give me a shout if you'd like to discuss.

Mark

Mark Durno
Homeland Security Advisor / Deputy Chief
Emergency Response Branch
U.S. Environmental Protection Agency
25063 Center Ridge Road
Westlake, OH 44145
440-250-1743

Durno, Mark

From: Durno, Mark
Sent: Wednesday, December 21, 2016 9:53 AM
To: Johnson, Mark
Cc: Geyer, Rebecca
Subject: Re: Action Levels - Bacteria

Follow Up Flag: Follow up
Flag Status: Flagged

Thx! One more note. The protective order was raised by the court so they no longer have that restriction for the state. So the state health department should be able to engage on this now.

Sent from my iPhone

On Dec 21, 2016, at 9:09 AM, Johnson, Mark <johnson.mark@epa.gov> wrote:

Turns out this is an internal CDC call. I will call you later.

Sent from my iPhone

On Dec 21, 2016, at 7:21 AM, Durno, Mark <durno.mark@epa.gov> wrote:

Yes. I can attend. I'll just be driving.

Sent from my iPhone

On Dec 20, 2016, at 11:14 PM, Johnson, Mark <johnson.mark@epa.gov> wrote:

Mark

We are having a conference call tomorrow morning at 9:30 AM ET with CDC/ATSDR staff to discuss the request. I think that it would be good to have you participate. I will check with Atlanta and confirm with you before the call if you are available.

Mark

Mark D. Johnson, PhD, DABT

Regional Director/Toxicologist

Agency for Toxic Substances and Disease Registry

77 W. Jackson Blvd

Chicago, IL 60604

email: mdjohnson@cdc.gov

phone: 312-353-3436

cell: 312-307-7415

From: Durno, Mark
Sent: Tuesday, December 20, 2016 2:08 PM
To: Johnson, Mark
Cc: Geyer, Rebecca
Subject: FW: Action Levels - Bacteria

Mark,

As discussed yesterday, can you reach out to CDC's Legionella and Waterborne Disease experts to get input on the bulleted items below? Maybe we could have a call with them to discuss sometime soon... Attached are all the communications, action item, and presentation materials that we've received to date:

- Review of FACHEP documents and communication approach
- Seek guidance on Wayne State's request for an "action level"
- See guidance on action items when legionella is detected

Thanks!

Mark Durno
Homeland Security Advisor / Deputy Chief
Emergency Response Branch
U.S. Environmental Protection Agency
25063 Center Ridge Road
Westlake, OH 44145
440-250-1743

From: Durno, Mark [<mailto:durno.mark@epa.gov>]
Sent: Monday, December 19, 2016 9:17 AM
To: Wells, Eden (DHHS) <WellsE3@michigan.gov>; Collins, Jim (DHHS) <CollinsJ12@michigan.gov>; McFadden, Jevon (DHHS-Contractor) <McFaddenJ1@michigan.gov>; LyonCallo, Sarah (DHHS) <Lyoncallos@michigan.gov>
Cc: Johnson, Mark <johnson.mark@epa.gov>
Subject: RE: Action Levels - Bacteria

Eden,

Yes – we'll reach out to HHS & CDC for expert support. We'll coordinate on the following:

- Review of FACHEP documents and communication approach
- Seek guidance on Wayne State's request for an "action level"
- See guidance on action items when legionella is detected

Mark J – I'll give you a call later today.

Mark

Mark Durno

Homeland Security Advisor / Deputy Chief
Emergency Response Branch
U.S. Environmental Protection Agency
25063 Center Ridge Road
Westlake, OH 44145
440-250-1743

From: Wells, Eden (DHHS) [mailto:WellsE3@michigan.gov]

Sent: Monday, December 19, 2016 9:06 AM

To: Collins, Jim (DHHS) <CollinsJ12@michigan.gov>; McFadden, Jevon (DHHS-Contractor) <McFaddenJ1@michigan.gov>; LyonCallo, Sarah (DHHS) <lyoncallos@michigan.gov>

Cc: Durno, Mark <durno.mark@epa.gov>; Johnson, Mark <johnson.mark@epa.gov>

Subject: RE: Action Levels - Bacteria

Mark and Mark,

We would like a call to get an understanding of the "action level" for Legionella response brought up by our Wayne State researchers at a meeting earlier this month, who are working on Legionella environmental sampling in homes and high risk buildings in Flint— hopefully soon engaging control sites outside of Flint and from another county.

However, per the Protective Order currently in place, I am not sure we can engage our Legionella partners at CDC yet. Perhaps Mark Durno, could you carry on this discussion with Mark Johnson and perhaps the Legionella Team there at CDC on this issue for now?

Eden

Eden V. Wells, MD, MPH, FACPM
Chief Medical Executive
Michigan Department of Health and Human Services
P.O. Box 30195

Lansing, MI 48909

From: Collins, Jim (DHHS)
Sent: Monday, December 19, 2016 8:49 AM
To: Wells, Eden (DHHS) <WellsE3@michigan.gov>; McFadden, Jevon (DHHS-Contractor) <McFaddenJ1@michigan.gov>; LyonCallo, Sarah (DHHS) <lyoncallos@michigan.gov>
Subject: RE: Action Levels - Bacteria

Eden, Jevon, and Sarah,

I agree that we should engage CDC on this.

While a standard set of recommendations can be shared, I think we need to keep in mind a couple of things that I've heard from our CDC colleagues. First, that a 12% find rate for legionella is well within the literature and there was no difference inside or outside Flint (not clear on whether that is an appropriate surrogate for on/off Flint municipal water). This is also in the context of a very aggressive testing strategy being employed (I think) at the households. Second, CDC has told us that there is a paucity (at best) linking residential water supply to outbreaks of legionellosis with the residence as a source. I also think that we all know that anthrax and legionella are very different bugs. Just my two cents.

So, while I agree that they should go ahead and share some standards for mitigation, I'm cautious about how this information has been and will be presented.

Jim

From: Wells, Eden (DHHS)
Sent: Sunday, December 18, 2016 12:19 PM
To: Durno, Mark <durno.mark@epa.gov>; McFadden, Jevon (DHHS-Contractor) <McFaddenJ1@michigan.gov>; LyonCallo, Sarah (DHHS) <lyoncallos@michigan.gov>; Collins, Jim (DHHS) <CollinsJ12@michigan.gov>
Subject: Fw: Action Levels - Bacteria

Thank you so much, Mark,

Looping in Dr. McFadden, our State Epi and our CD
Division Director. I concur on using a no-growth
standard, but they may have some other input as well.

Eden

Eden V. Wells, MD, MPH, FACPM

Chief Medical Executive

Michigan Department of Health and Human Services

Lansing, MI

Phone: 517-284-4020

wellse3@michigan.gov

From: Durno, Mark <durno.mark@epa.gov>
Sent: Monday, December 5, 2016 4:21 PM
To: Shawn Patrick McElmurry; Wells, Eden (DHHS)
Subject: Action Levels - Bacteria

Shawn/Eden,

During our discussions last Friday, Shawn asked the question about action levels for legionella bacteria. I dealt with this issue during the anthrax cleanups back in 2001-04. Take a look at the multi-agency paper, attached. Bottom line, because some people are more susceptible to disease than others, our action standard was no-growth on environmental samples. Although this is a very different situation, I believe that from an follow-up stand-point, a positive hit triggers action. With living organisms, a low hit this week, could turn into a high hit down the road. Given this, for any re-assessment that WSU will conduct after a positive hit, would it make sense to have the resident take some interim action between sampling events? For example, flushing their hot and cold water lines for several minutes every day and cleansing their fixtures before the next sampling event. We may learn that some simple actions can make a difference in these homes. It may be beneficial to engage the CDC experts on this or other action ideas.

Just thinking out loud....

Feel free to give me a shout if you'd like to discuss.

Mark

Mark Durno

Homeland Security Advisor / Deputy Chief

Emergency Response Branch
U.S. Environmental Protection Agency
25063 Center Ridge Road
Westlake, OH 44145

440-250-1743

Durno, Mark

From: Durno, Mark
Sent: Wednesday, January 11, 2017 12:55 PM
To: Nowotarski, Allison; Deltoral, Miguel
Subject: Fwd: Response to comments on PoU

Follow Up Flag: Follow up
Flag Status: Flagged

Sent from my iPhone

Begin forwarded message:

From: Matthew Seeger <matthew.seeger@wayne.edu>
Date: January 11, 2017 at 12:41:09 PM EST
To: "Wells, Eden (DHHS)" <WellsE3@michigan.gov>, Nancy Love <nglove@umich.edu>
Cc: Shawn McElmurry <s.mcelmurry@wayne.edu>, Marcus Zervos <MZERVOS1@hfhs.org>, Paul Kilgore <paul.kilgore@wayne.edu>, "Lasher, GERALYN (DHHS)" <lasherg@michigan.gov>, "Minicuci, Angela (DHHS)" <MinicuciA@michigan.gov>, "LyonCallo, Sarah (DHHS)" <lyoncallos@michigan.gov>, Marc Edwards <edwardsm@vt.edu>, "Durno, Mark" <durno.mark@epa.gov>, "kaplan.robert@epa.gov" <kaplan.robert@epa.gov>, "Pamela Pugh" <ppugh@cityofflint.com>, "Feighner, Bryce (DEQ)" <FEIGHNERB@michigan.gov>
Subject: Re: Response to comments on PoU

While we do not have complete consensus, there are important areas of agreement and perhaps another approach is to emphasize those this evening.

The water is much improved.

Residents should continue to use filters.

There are ongoing questions we are still trying to answer.

We are working aggressively to learn all we can and insure that the health of residents is protected.

Matt

From: "Wells, Eden (DHHS)"
Date: Wednesday, January 11, 2017 at 12:36 PM
To: Matt Seeger, Nancy Love
Cc: Shawn McElmurry, Marcus Zervos, Paul Kilgore, "Lasher, GERALYN (DHHS)", Angela Minicuci, "LyonCallo, Sarah (DHHS)", Marc Edwards, "Durno, Mark", "kaplan.robert@epa.gov", Pamela Pugh, "Feighner, Bryce (DEQ)"
Subject: Re: Response to comments on PoU

Sorry, did not mean to go off into scientific discourse and hypothesis generations today....I think that the key here for my talking points this eve is what is required for a change in PH recommendations (my role) versus what or how an individual

doctor may counsel a patient. And physicians always have a difference in opinion on those as well.

Eden V. Wells, MD, MPH, FACPM

Chief Medical Executive

Michigan Department of Health and Human Services

Lansing, MI

Phone: 517-284-4020

wellse3@michigan.gov

From: Wells, Eden (DHHS)

Sent: Wednesday, January 11, 2017 12:29 PM

To: Matthew Seeger; Nancy Love

Cc: Shawn McElmurry; Marcus Zervos; Paul Kilgore; Lasher, GERALYN (DHHS); Minicuci, Angela (DHHS); LyonCallo, Sarah (DHHS); Marc Edwards; Durno, Mark; kaplan.robert@epa.gov; Pamela Pugh; Feighner, Bryce (DEQ)

Subject: Re: Response to comments on PoU

People use filters all over the country, and what science states that you can't find an Enterococcus on one of them too, is Dr. Love sure that you would not?

We think that there should be a high-level scientific review of how and why Dr. Love thinks her data shows Flint is different, and frankly that should have been done prior to all of this since before the December 14 meeting. If a collection of ID docs and water microbiologists that agree, or a peer-reviewed journal accepts such a premise which is supported by rigorous science...that would be a more productive conversation.

It is my understanding that in Chicago, no one got a chance to discuss or delve into this stance from UM.

Eden V. Wells, MD, MPH, FACPM

Chief Medical Executive

Michigan Department of Health and Human Services

Lansing, MI

Phone: 517-284-4020

wellse3@michigan.gov

From: Matthew Seeger <matthew.seeger@wayne.edu>

Sent: Wednesday, January 11, 2017 12:19 PM

To: Nancy Love; Wells, Eden (DHHS)

Cc: Shawn McElmurry; Marcus Zervos; Paul Kilgore; Lasher, GERALYN (DHHS); Minicuci, Angela (DHHS); LyonCallo, Sarah (DHHS); Marc Edwards; Durno, Mark; kaplan.robert@epa.gov; Pamela Pugh; Feighner, Bryce (DEQ)

Subject: Re: Response to comments on PoU

Hi Eden: We have agreed that the language we use is that "Individuals may choose to boil water. . . ." This is a choice that individuals may make based on their circumstances. We are not saying that we recommend boiling water.

Matt

From: Nancy Love

Date: Wednesday, January 11, 2017 at 11:54 AM

To: "Wells, Eden (DHHS)"

Cc: Shawn McElmurry, Marcus Zervos, Matt Seeger, Paul Kilgore, "Lasher, GERALYN (DHHS)", Angela Minicuci, "LyonCallo, Sarah (DHHS)", Marc Edwards, "Durno, Mark", "kaplan.robert@epa.gov", Pamela Pugh, "feighnerb@michigan.gov"

Subject: Response to comments on PoU

Eden: Starting a new thread and bringing in others present in Chicago yesterday so they know our position and why, pertinent to the near universal agreement that we will all advise that PoU faucet-mounted filters continue to be used.

I know you missed our talk in Chicago where we talked more deeply about microbial families and genera present in filtered water and which taxa increase across filter, or just pass through from source water without being removed. The position that considers water boiling as an option for those who choose to use tap water is one that arises from information obtained in our NSF-

sponsored filter study. If my family lived in Flint, it is what I would do and I cannot ethically suggest differently to the residents of Flint. We believe this position is most prudent until it is proven not necessary. My understanding is that the current recommendations already suggest that immune compromised individuals and those with additional risk factors are being advised by GCMS and others to use bottle water. Presenting this as an option for residents who are concerned may be a good way to proceed.

Running off to class - see you in Flint.

Nancy

Nancy G. Love, Ph.D., P.E., BCEE

Borchardt and Glysson Collegiate Professor

Department of Civil and Environmental Engineering, University of Michigan

Adjunct Professor, Addis Ababa University Institute of Biotechnology, Ethiopia

Fellow: Water Environment Federation; International Water Association; Association of Environmental Engineering and Science Professors

183 EWRE Building

1351 Beal Avenue

Ann Arbor, MI 48109

Voice: (734) 763-9664

nglove@umich.edu

<http://envbiotech.engin.umich.edu/>

Twitter: @Love_H2O

Attend the AEESP2017 Conference on Advancing Healthy Communities

June 20-22, 2017, Ann Arbor Michigan

Abstracts due: January 9, 2017

Durno, Mark

From: Durno, Mark
Sent: Wednesday, January 11, 2017 2:20 PM
To: Kaplan, Robert
Subject: Re: Response to comments on PoU

Follow Up Flag: Follow up
Flag Status: Flagged

Sure thing

Sent from my iPhone

On Jan 11, 2017, at 2:10 PM, Kaplan, Robert <kaplan.robert@epa.gov> wrote:

Mark, let's you and I talk before you say anything about this issue on email or tonight. Bob

Robert Kaplan
Acting Regional Administrator
EPA Region 5
Cell: 312-515-9827
Office: 312-886-1499

On Jan 11, 2017, at 11:23 AM, Durno, Mark <durno.mark@epa.gov> wrote:

My hope is that this is put into proper context by letting the community know that bacteria is common in drinking water and further assessment is being done to better understand what's happening locally.

Sent from my iPhone

On Jan 11, 2017, at 11:05 AM, Wells, Eden (DHHS) <WellsE3@michigan.gov> wrote:

The recommendation for boiling water from filters has not been recommended by GCMS that I know of, and the other recs were due to concerns of LEAD or LEGIONELLA and done under a precautionary principle, as there is a lack of evidence.

All who were there in Chicago, please feel free to advise,
but I as of now I will not be making any changes in any public health recommendations as there is no evidence to do so. If someone wants to ask how they can protect themselves, they can follow manufacturer instructions

or purchase bottled water; further studies are being done regarding flushing, but such studies do not address linkages to health impacts.

Dr.

Eden V. Wells, MD, MPH, FACPM

Chief Medical Executive

Michigan Department of Health and Human Services

Lansing, MI

Phone: 517-284-4020

wellse3@michigan.gov

From: Nancy Love <nglove@umich.edu>

Sent: Wednesday, January 11, 2017 11:54 AM

To: Wells, Eden (DHHS)

Cc: Shawn Patrick McElmurry; Marcus Zervos; Matt Seeger; Paul Evan Kilgore; Lasher, GERALYN (DHHS); Minicuci, Angela (DHHS); LyonCallo, Sarah (DHHS); Marc Edwards; Durno, Mark; kaplan.robert@epa.gov; Pamela Pugh; Feighner, Bryce (DEQ)

Subject: Response to comments on PoU

Eden: Starting a new thread and bringing in others present in Chicago yesterday so they know our position and why, pertinent to the near universal agreement that we will all advise that PoU faucet-mounted filters continue to be used.

I know you missed our talk in Chicago where we talked more deeply about microbial families and genera present in filtered water and which taxa increase across filter, or just pass through from source water without being removed. The position that considers water boiling as an option for those who choose to use tap water is one that arises from information obtained in our NSF-sponsored filter study. If my family lived in Flint, it is what I would do and I cannot ethically suggest differently to the residents of Flint. We believe this position is most prudent until it is proven

not necessary. My understanding is that the current recommendations already suggest that immune compromised individuals and those with additional risk factors are being advised by GCMS and others to use bottle water. Presenting this as an option for residents who are concerned may be a good way to proceed.

Running off to class - see you in Flint.

Nancy

Nancy G. Love, Ph.D., P.E., BCEE

Borchardt and Glysson Collegiate Professor
Department of Civil and Environmental Engineering,
University of Michigan
Adjunct Professor, Addis Ababa University Institute of
Biotechnology, Ethiopia
Fellow: Water Environment Federation; International Water
Association; Association of Environmental Engineering and
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Twitter: @Love_H2O

**Attend the AEESP2017 Conference on Advancing
Healthy Communities
June 20-22, 2017, Ann Arbor Michigan
Abstracts due: January 9, 2017**

Durno, Mark

From: Durno, Mark
Sent: Monday, February 27, 2017 3:22 PM
To: Maeve Carey; Voirin, Anthony (OS/ASPR/OEM)
Subject: RE: 2017 Preparedness Summit - Combined Learning Session - New Combined Title - I-15
Attachments: BioDisclosure - Durno.docx
Follow Up Flag: Follow up
Flag Status: Flagged

Here you go.

Mark Durno
Homeland Security Advisor / Deputy Chief
Emergency Response Branch
U.S. Environmental Protection Agency
25063 Center Ridge Road
Westlake, OH 44145
440-250-1743

From: Maeve Carey [mailto:mcarey@conferencemanagers.com]
Sent: Friday, February 24, 2017 4:44 PM
To: Voirin, Anthony (OS/ASPR/OEM) <Anthony.Voirin@hhs.gov>
Cc: scupal@gchd.us; matthew.seeger@wayne.edu; paul.kilgore@wayne.edu; Knutson, Donna (CDC/ONDIEH/NCEH) <dbk2@cdc.gov>; Michael, Gretchen (OS/ASPR/COO) <Gretchen.Michael@hhs.gov>; Funk, Renee (CDC/ONDIEH/NCEH) <rjf8@cdc.gov>; Nowotarski, Allison <nowotarski.allison@epa.gov>; Durno, Mark <durno.mark@epa.gov>; scottl12@michigan.gov
Subject: RE: 2017 Preparedness Summit - Combined Learning Session - New Combined Title - I-15

Hi Anthony,

I just tried giving you a call, but the number would not go through. I will be able to adjust the listed order of the presentations and I have also added Mark Durno. In order for the session to receive CE credits please have Mark fill out and return the attached form to me ASAP.

As a combined session, all presenters and session information must be combined into one session account. The system will not allow us to enter these sessions separately. I apologize.

Lastly, when you give me the combined title, would you also be able to provide me with the speaker order for each session?

Thank you,

Maeve

From: Voirin, Anthony (OS/ASPR/OEM) [mailto:Anthony.Voirin@hhs.gov]
Sent: Friday, February 24, 2017 11:12 AM
To: Maeve Carey
Cc: scupal@gchd.us; matthew.seeger@wayne.edu; paul.kilgore@wayne.edu; Knutson, Donna (CDC/ONDIEH/NCEH); Michael, Gretchen (OS/ASPR/COO); Funk, Renee (CDC/ONDIEH/NCEH); Nowotarski, Allison

(nowotarski.allison@epa.gov); durno.mark; scott12@michigan.gov

Subject: RE: 2017 Preparedness Summit - Combined Learning Session - New Combined Title - I-15

Maeve,

The panel members had a call yesterday and decided a few things.

- After discussing each panels focus we decided the order of the panel presentations will be
 - 13578—*Observations from the Flint Water Crisis Response*
 - 13808—*Hear the Voices of Flint: Communicating Health Information during the Flint Water Crisis*
 - 13545—*Public Health Preparedness Lessons from the Flint Water Crisis*
- Each Panel will keep their presentations to 25 min which will allow time for questions at the end.
- We would like each panel to submit their presentations through the portal separately.

Lastly, the panel I am on, 13578—*Observations from the Flint Water Crisis Response*, has a change in Linda Scott will not be able to attend. In her place we need to add Mark Durno (Durno.mark@EPA.gov). What do we need to do to get him added and get you his profile? I looked on the portal and don't see how I can do this without you.

If I am forgetting anything, please chime in. Thanks, Tony

Anthony Voirin, CEM
Regional Emergency Coordinator, Region V
233 N Michigan Ave, Suite 1300
Chicago Illinois 60601
BB: 415-385-6451
Cell: 206-512-6999

From: Maeve Carey [<mailto:mcarey@conferencemanagers.com>]

Sent: Thursday, February 23, 2017 3:50 PM

To: Michael, Gretchen (OS/ASPR/COO)

Cc: scupal@gchd.us; matthew.seeger@wayne.edu; paul.kilgore@wayne.edu; Voirin, Anthony (OS/ASPR/OEM); Knutson, Donna (CDC/ONDIEH/NCEH); scott12@michigan.gov; Funk, Renee (CDC/ONDIEH/NCEH); Nowotarski, Allison (nowotarski.allison@epa.gov)

Subject: RE: 2017 Preparedness Summit - Combined Learning Session - New Combined Title - I-15

Thank you Gretchen.

I have updated the speaker information. Has your group settled on a combined title for the session?

Thank you,

Maeve

From: Michael, Gretchen (OS/ASPR/COO) [<mailto:Gretchen.Michael@hhs.gov>]

Sent: Tuesday, February 21, 2017 10:37 AM

To: Maeve Carey

Cc: scupal@gchd.us; matthew.seeger@wayne.edu; paul.kilgore@wayne.edu; Voirin, Anthony (OS/ASPR/OEM); Knutson, Donna (CDC/ONDIEH/NCEH); scott12@michigan.gov; Funk, Renee (CDC/ONDIEH/NCEH); Nowotarski, Allison (nowotarski.allison@epa.gov)

Subject: RE: 2017 Preparedness Summit - Combined Learning Session - New Combined Title - I-15

Hi Maeve --

I just got back from a week's leave and I saw this email. I noticed that the abstracts and the presenters are not aligned here. They should be as follows:

I-15 Combined Title:

13545—Public Health Preparedness Lessons from the Flint Water Crisis: This presentation shares lessons from the Flint Area Community Health and Environmental Partnership project, a team of public health, environmental engineers, infectious disease specialists, and crisis and risk communication researchers working in Flint, Michigan, to address questions of water contamination and infectious disease outbreaks.

Speaker 1: Matthew Seeger matthew.seeger@wayne.edu

Speaker 2: Paul Kilgore paul.kilgore@wayne.edu

Speaker 3: Shawn McElmurry

13808—Hear the Voices of Flint: Communicating Health Information during the Flint Water Crisis: The presentation will discuss the evolution of the communications approach and communications products during the Flint, Michigan water crisis. This happened over the course of months and involved partnerships with county, city, state, and federal communicators. The shift was significantly based on what we heard from the community including the Recovery Working Groups, mini-focus groups, or feedback from water testing teams who went into peoples' homes. The Unified Coordination Group and its partners listened to the community to help drive not only what information was conveyed but also how it was shared, changing the traditional top-down approach to pre-decisional, two-way communication and from text-dense fact sheets as the response began to simple infographics and extremely plain-language information sheets and community engagement as the response continued.

Speaker 1: Renee Funk rjf8@cdc.gov

Speaker 2: Suzanne Cupal scupal@gchd.us

Speaker 3: Allison Nowatorski nowotarski.allison@epa.gov

Moderator: Gretchen Michael

Speaker 1: Matthew Seeger matthew.seeger@wayne.edu

Speaker 2: Paul Kilgore paul.kilgore@wayne.edu

Speaker 3: Shawn McElmurry

13578—Observations from the Flint Water Crisis Response: In response to the Flint Water Crisis, HHS was designated the lead federal agency responsible for coordinating federal government response. This session will discuss the coordination of the response through the Unified Coordination Group.

Speaker 1: Anthony Voirin anthony.voirin@hhs.gov

Speaker 2: Donna Knutson dbk2@cdc.gov

Speaker 3: Linda Scott scottl12@michigan.gov

Also I have added two additional speakers who will be part of the communications panel. Thank you.

Gretchen

From: Maeve Carey [<mailto:mcarey@conferencemanagers.com>]

Sent: Friday, February 10, 2017 2:27 PM

To: Michael, Gretchen (OS/ASPR/COO); scupal@gchd.us; matthew.seeger@wayne.edu; paul.kilgore@wayne.edu; Voirin, Anthony (OS/ASPR/OEM); Knutson, Donna (CDC/ONDIEH/NCEH); scottl12@michigan.gov

Subject: 2017 Preparedness Summit - Combined Learning Session - New Combined Title - I-15

Hello,

Your abstracts have been combined into one session. Normally NACCHO creates a combined timeslot title but would like to give you the freedom to collaborate with your other presenters to create your combined timeslot title. Below are the titles and descriptions of the abstracts in your session. Please work together to create your new, combined session title that will display online. Once a title has been selected, let me know and I will make adjustments in the online planner.

I-15 Combined Title:

13545—*Public Health Preparedness Lessons from the Flint Water Crisis*: This presentation shares lessons from the Flint Area Community Health and Environmental Partnership project, a team of public health, environmental engineers, infectious disease specialists, and crisis and risk communication researchers working in Flint, Michigan, to address questions of water contamination and infectious disease outbreaks.

Speaker 1: Gretchen Michael Gretchen.Michael@hhs.gov

Speaker 2: Suzanne Cupal scupal@gchd.us

Moderator: Gretchen Michael

13808—*Hear the Voices of Flint: Communicating Health Information during the Flint Water Crisis*: The presentation will discuss the evolution of the communications approach and communications products during the Flint, Michigan water crisis. This happened over the course of months and involved partnerships with county, city, state, and federal communicators. The shift was significantly based on what we heard from the community including the Recovery Working Groups, mini-focus groups, or feedback from water testing teams who went into peoples' homes. The Unified Coordination Group and its partners listened to the community to help drive not only what information was conveyed but also how it was shared, changing the traditional top-down approach to pre-decisional, two-way communication and from text-dense fact sheets as the response began to simple infographics and extremely plain-language information sheets and community engagement as the response continued.

Speaker 1: Matthew Seeger matthew.seeger@wayne.edu

Speaker 2: Paul Kilgore paul.kilgore@wayne.edu

Speaker 3: Shawn McElmurry

13578—*Observations from the Flint Water Crisis Response*: In response to the Flint Water Crisis, HHS was designated the lead federal agency responsible for coordinating federal government response. This session will discuss the coordination of the response through the Unified Coordination Group.

Speaker 1: Anthony Voirin anthony.voirin@hhs.gov

Speaker 2: Donna Knutson dbk2@cdc.gov

Speaker 3: Linda Scott Scottl12@michigan.gov

Please note, we will also display your original abstract title in the Presentation Description. They will be broken out in Part A and Part B.

Let me know if you have any questions.

Best,

Maeve

Durno, Mark

From: Shawn McElmurry <s.mcelmurry@wayne.edu>
Sent: Monday, March 27, 2017 5:01 PM
To: Durno, Mark
Subject: RE: NSF

Follow Up Flag: Follow up
Flag Status: Flagged

Thanks Mark.

From: Durno, Mark [mailto:durno.mark@epa.gov]
Sent: Monday, March 27, 2017 1:50 PM
To: Shawn McElmurry <s.mcelmurry@wayne.edu>
Subject: FW: NSF

Shawn,

Per our discussion, Brandon Rudolph (see message below) is the NSF International rep who came to the Water Infrastructure Summit – I'll find his contact information....

Mark

Mark Durno
Homeland Security Advisor
Emergency Response Branch
U.S. Environmental Protection Agency
25063 Center Ridge Road
Westlake, OH 44146
440-250-1743

From: Poy, Thomas
Sent: Tuesday, March 21, 2017 4:29 PM
To: Kaplan, Robert <kaplan.robert@epa.gov>
Cc: **Subject:** NSF

Bob: I talked to Brandon Rudolph, NSF – Filtration Division about filters and the concern being raised regarding bacterial growth. He said that manufacturers have been aware of such concerns in the past. Filters can physically capture bacteria and biofilm could form. The manufacturers make it clear that the filters are not for use with microbially contaminated water. The potential for microbial growth is also factored into the use/maintenance instructions. Brandon said that there are tests for microbial growth, e.g., there's a 13 week test, but many do not see the business need to get this type of certification.

Brandon also mentioned an NSF standards forum in May 2017 that is open to the public.

Tom Poy
Chief, Ground Water and Drinking Water Branch
USEPA - Region 5
(312) 886-5991

Durno, Mark

From: Durno, Mark
Sent: Thursday, April 27, 2017 11:04 AM
To: Durno, Mark
Subject: RE: FW: Stenotrophomonas maltophilia

Follow Up Flag: Follow up
Flag Status: Flagged

Mark Durno
Homeland Security Advisor
Emergency Response Branch
U.S. Environmental Protection Agency
25063 Center Ridge Road
Westlake, OH 44145
440-250-1743

From: Durno, Mark
Sent: Wednesday, April 26, 2017 5:15 PM
To: Rodgers, Mark <Rodgers.Mark@epa.gov>; Jonathan Pressman (Pressman.Jonathan@epa.gov) <Pressman.Jonathan@epa.gov>
Subject: FW: FW: Stenotrophomonas maltophilia

Mark/Jonathan,

From Dr. Love. Please keep this as a 'close hold' as requested below.

md

Mark Durno
Homeland Security Advisor
Emergency Response Branch
U.S. Environmental Protection Agency
25063 Center Ridge Road
Westlake, OH 44145
440-250-1743

From: Nancy Love [mailto:nglove@umich.edu]
Sent: Wednesday, April 26, 2017 12:29 PM
To: Durno, Mark <durno.mark@epa.gov>
Cc: Shawn McElmurry <s.mcelmurry@wayne.edu>
Subject: Re: FW: Stenotrophomonas maltophilia

Hi Mark:

thanks for the input. I'll look at those papers.

Let me clarify a few things from our data set and others I've looked at:

1. We have 35 samples in Flint across 19 houses. We analyzed 12 of those samples (7 houses) with 16S whole community MiSeq and the way we found that there was a Steno issue in the affected house is that most of the *Stenotrophomonas* taxa were not detected, but in the patient's house it was quite abundant. Because the patient gave permission for her doctor to talk with us, this is the only way we found it (since it was generally not there in Flint samples otherwise). We have completed a 23S qPCR for *S. maltophilia* on first flush water coming INTO homes for ALL 35 samples and here is the summary: 26 are not detected, 5 were below quantification (which is around 0.1 colony per mL), and 6 were quantifiable (up to about 8 colonies/mL estimate in first flush kitchen faucet (no filter) samples). I do not have information on dose-response and I hear it is not well established for this organism. The quantifiable measurements are from 3 houses in Flint, all of which are in high water age or stagnant areas.

2. As a point of comparison, consider the Holinger 2014 paper that used pyrosequencing to look at water coming out of taps (no filters) in 17 cities along the Missouri and Mississippi Rivers, they only detect a *Stenotrophomonas* taxa in 5 of 63 samples analyzed. I will note that of those 5, all are in chlorinated waters (there are chlorinated waters where it is not detected, and there are chloraminated waters sampled and none are detected). The positives span across both groundwater and surface water. I have not yet gone in to look at the Steno taxa they detected and blasted it to determine if the sequence possibly aligns with *maltophilia*, but there is only one Steno taxa identified for all of their samples.

3. Note that the affected house in Flint also had an unusually high spike in *Pseudomonas* via the MiSeq data relative to other houses, and the taxa blast includes *aeruginosa* (but is not proof of *aeruginosa*). Among our isolates, Henry Ford Hospital is detecting a few *P. aeruginosa* in the affected house off the steno selective plates that include a carbapenem family antibiotic. We mentioned this in our previous call to you and Robert but have not updated you on this data - we expect to in the next few weeks.

4. Davison and Ann Arbor controls are all non detect or below quantification for Steno.

Bottom line, while Steno is relatively common in the environment, I have not been able to conclude that it is common in drinking water based on our data and what I have read in selected papers. I need to look deeper and appreciate the references from your colleagues. Also, we may be detecting ABR *P. aeruginosa* which is a bigger issue than Steno.

Points 1 through 4 have been shared as presentation or verbally with Dr. Pugh, the GCMS, and Dr. Wells of the MDHHS. We have not discussed the *P. aeruginosa* results with residents yet until we get further along and have guidance from PH officials before we do so. Please keep this close and do not share more broadly than the colleagues you have noted and Robert.

Happy to discuss more and with your colleagues.

Nancy

Nancy G. Love, Ph.D., P.E., BCEE

Borchardt and Glysson Collegiate Professor

Department of Civil and Environmental Engineering, University of Michigan

Adjunct Professor, Addis Ababa University Institute of Biotechnology, Ethiopia

Fellow: Water Environment Federation; International Water Association; Association of Environmental Engineering and Science Professors

183 EWRE Building

1351 Beal Avenue

Ann Arbor, MI 48109

Durno, Mark

From: Shawn McElmurry <s.mcelmurry@wayne.edu>
Sent: Monday, May 08, 2017 10:03 PM
To: Durno, Mark; Whitney, Cynthia (CDC/OID/NCIRD)
Cc: Nancy Love; Matthew Seeger
Subject: Press releases
Attachments: FlintMAY9Release-FINAL-050817_2140.docx; PoU Filter study_PressRelease_May8_FINAL.docx

Follow Up Flag: Follow up
Flag Status: Flagged

Hello Mark and Cindy, I wanted to give you a quick heads up regarding two press releases that we plan to send out tomorrow. Sorry for the late notice but I wanted you to have a copy of the releases in case you received any questions.

We have worked very hard with our partners to get consensus around these statements. Feedback from both MDHHS and GCHD has been incorporated into the final version. The releases may not be perfect, but it is the best we can do at this time.

Shawn

Shawn P. McElmurry, Ph.D., P.E.
Associate Professor
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University researchers continue their investigation of Legionnaires' disease in Genesee County

A research team led by Wayne State University is sharing findings from testing last fall and will resume sampling Flint water in June. In partnership with the City of Flint, Genesee County Health Department, Genesee County Medical Society as well as the Michigan Department of Health and Human Services, researchers are working to understand and reduce the incidence of Legionnaires' and other infectious respiratory diseases in Genesee County, Michigan.

Legionella was detected in approximately 12% of 188 randomly selected homes in Flint and neighboring areas outside of Flint sampled from September 6 through October 29, 2016. In most cases concentrations of Legionella were low. In addition, the occurrence of Legionella in these homes was similar to what researchers have found in other communities.

Through systematic community-based sampling, the Flint Area Community Health and Environment Partnership (FACHEP) obtained 18 Legionella pneumophila isolates from environmental samples collected in 2016. Sixteen of the 18 isolates were identified as L. pneumophila serogroup 6.

"This is important because the urine antigen test commonly used to detect Legionnaires' disease in patients targets a different type of L. pneumophila (serogroup 1). Therefore, it is important for medical professionals to continue to analyze sputum samples to diagnose Legionnaire's disease," said Dr. Michele Swanson, a microbiologist from the University of Michigan.

Enhanced monitoring for the disease in 2016 resulted in more than 300 tests – urinary antigen and sputum – being negative for L. pneumophila.

"During 2016, 17 confirmed cases of Legionnaires' disease were reported in Genesee County, and no deaths were reported; the majority of the cases occurred in residents (13 of 17) living outside of Flint during the two weeks prior to their illness" said Dr. Eden Wells, Chief Medical Executive, from Michigan Department of Health and Human Services.

Through an agreement with the MDHSS that strictly protects patient confidentiality and privacy, FACHEP also obtained 33 Legionella pneumophila bacterial isolates from patients with Legionnaires' disease. The isolates were from patients treated in Genesee, Oakland, and Wayne counties between 2013 and 2016 but they were not limited to the residents of those counties. Of the 33 patient isolates, there were 16 different strain types of L. pneumophila based on analysis of Legionella DNA. One of the environmental L. pneumophila serogroup 1 isolates obtained in a residence in the city of Flint was found to be the same sequence type (ST1) as the strains from four patients treated for L. pneumophila infections. Sequence type 1 strains have been isolated from patients in other outbreaks and, according to the work of others, were also isolated from water at McLaren Hospital in Flint. Additional laboratory and

epidemiological analysis is required to determine the likelihood that any persons acquired Legionnaires' disease from water or mist in their home plumbing systems that contained *L. pneumophila*.

Shawn McElmurry, leader of the FACHEP research group, noted that the investigation is challenging. "These are very complicated questions, and we are working with a team of investigators including epidemiologists, microbiologists, water engineers and statisticians to understand what happened in Genesee County. Most important is the assistance of residents who continue to work with us on this challenging problem. We look forward to collecting and analyzing additional samples to help us better address questions."

Legionella bacteria grow best in warm water when adequate disinfection is not maintained. Common locations for the bacteria are cooling towers and plumbing systems of large buildings, hot tubs, hot water tanks, decorative fountains and pools. Legionnaires' disease is more common in warmer months.

An outbreak of Legionnaires' disease occurred in Genesee County following the change from water supplied by the Detroit Water and Sewerage Department to water from the Flint River, supplied by the City of Flint. Legionnaires' disease may occur when individuals inhale water or mist containing *Legionella* bacteria.

"It is important that all necessary steps be taken to determine why this outbreak occurred so that the health of the residents of Genesee County can be protected," said Dr. Marcus Zervos, of Henry Ford Health System and a member of the Wayne State team.

The FACHEP research group, a consortium led by WSU that includes the University of Michigan, Michigan State University, Kettering University, Colorado State University, and Henry Ford Health System, is investigating the relationship between changes in the source of drinking water and the Legionnaires' outbreak.

Legionnaires' disease is an illness that affects lungs and breathing. The disease starts with flu-like symptoms such as fever, headache, muscle aches, and chills. In some people, typically the elderly, smokers, or those with weakened immune defenses, more serious symptoms can develop in as little as 1 to 2 days. People with severe Legionnaires' disease may develop high fever, a cough that is usually dry but sometimes produces mucus, difficulty breathing, chest pains, chills, and diarrhea. People who experience these symptoms should seek immediate medical attention and may require admission to the hospital.

Individuals can minimize their susceptibility to developing Legionnaires' disease by maximizing their lung health. Quitting smoking and receiving the pneumococcal and flu vaccines are three steps people can take to maximize their lung health.

For some residents who are at higher risk for Legionella and also for lead toxicity, the Genesee County Medical Society recommends that they use only reverse osmosis-purified bottled water or other sources of water purified by reverse osmosis (e.g. home units).

"When we do not have clear data, we err on the side of safety. Residents at higher risk for Legionnaires' disease and other infections as outlined in our press release of March 29, 2017 should continue to use bottled water," noted Dr. Laura Carravallah of the Genesee County Medical Society. "If you have questions about whether you fall into a high-risk group for Legionnaires' disease, please ask your health-care provider."

The Flint Area Community Health and Environment Partnership research team is funded in part by a contract from the MDHHS.

Additional information about Legionnaires' disease can be found at the Genesee County Health Department website (<http://gchd.us/resources/fact-sheets/>) the Michigan Department of Health and Human Services website (http://www.michigan.gov/documents/mdhhs/Legionnaires_Disease_FAQ_FINAL_524624_7.pdf) and the Centers for Disease Control and Prevention website (<https://www.cdc.gov/legionella/>).

May 9, 2017

Contacts: Nicole Casal Moore, U-M, 734-647-7087, ncmoore@umich.edu
Matt Lockwood, Wayne State, 313-577-9098, mlockwood@wayne.edu

Note: U-M professor Nancy Love and Wayne State professor Shawn McElmurry will be discussing these topics with Flint Mayor Karen Weaver today at 6:30 PM on WFLT 1420 AM Flint Radio.

Steps for Flint residents to reduce bacteria in filtered water

ANN ARBOR—A team of researchers from Michigan universities and hospitals has recommendations for Flint water customers to most effectively use the point-of-use water filters on their taps.

The recommendations go beyond the filter manufacturers' instructions. They advise users to flush the pipes and filters for longer periods of time each morning or after long periods of not using their water.

The research team is co-led by the University of Michigan and Wayne State University, and includes faculty members from Michigan State University, Kettering University and the Henry Ford Hospital System.

More than 100,000 faucet-mounted, point-of-use water filters and several hundred thousand cartridges have been distributed in Flint since October 2015. These activated carbon block, or ACB, filters are designed to remove metals, such as lead, chlorine, which is added to kill bacteria, and chemicals produced during chlorination. But several previous studies have shown that they can support the growth of bacteria in water.

All drinking water contains some bacteria, the researchers say. The researchers are still investigating whether any harmful bacteria are present in Flint-area filters. They have not, at this time, linked the bacteria to any illnesses.

In the meantime, Flint residents who wish to reduce the bacteria in the water they use can follow these steps each morning or after long periods of not using their water:

- Turn the switch on the filter to the position that directs water away from the filter through the bypass and run the faucet until the water temperature cools. This bypass step avoids the use of water that has been sitting in the home's plumbing and typically contains very little chlorine. It sends the water with the highest bacterial counts down the drain rather than through the filter, where it could lead to more bacteria growth. This process could

take several minutes.

- Run filtered water for 15 seconds before collecting any to use. This is longer than the five seconds that most filter manufacturers recommend.

"Flushing as we recommend can reduce the bacteria levels in water by 10 or 100 times," said Nancy Love, U-M professor of civil and environmental engineering who led the filter research. "That said, we know that Flint residents' water bills are among the highest in the country, and this approach could create additional financial hardship."

If users follow this regimen, the researchers say it's fine to follow manufacturers recommendations for replacing filters after processing about 100 gallons of water, or when the filter's red light goes on.

Although the research team has not studied shower filters or whole-house filters, they do not recommend that residents use them at this time.

"Some whole house filters can remove disinfectant residual in water that flows through household pipes, which can allow higher levels of bacteria to grow. Some shower filters can behave like kitchen faucet filters and support the growth of bacteria," said Shawn McElmurry, a professor of civil and environmental engineering at Wayne State.

The research team is coordinating closely with the Genesee County Medical Society and the Flint Mayor's Office.

"It's important that consumers of Flint municipal water understand that the filters for lead do not filter out microorganisms," said Peter Levine, executive director of the Genesee County Medical Society. "These new guidelines are beneficial for those who wish to reduce the level of bacteria in their water as a general precaution. However, for those at high risk of infection due to a weakened or immature immune system, we recommend that they use only bottled water that is purified by reverse osmosis for drinking, cooking and tooth-brushing."

The study was supported by grants to U-M and WSU from the National Science Foundation.

Team members say they appreciate the cooperation of Flint residents, which makes the study possible. Residents have been providing access into their homes and supplying the filters used in the study.

U-M, MSU and WSU make up the state's University Research Corridor, one of the nation's top academic research clusters.

Durno, Mark

From: Shawn McElmurry <s.mcelmurry@wayne.edu>
Sent: Tuesday, May 09, 2017 2:33 PM
To: Durno, Mark
Subject: RE: Press releases

Follow Up Flag: Follow up
Flag Status: Flagged

Yes, we recognize it is way too technical. We worked really hard to get consensus and every time we tried to bring down the reading level, we would have someone attempt to alter the content to more of their position. This would then result in back and forth edits until the very precise, technical language that people could not dispute. Needless to say, it was very hard to get this out. I wish we had better control over what we could put out....I'm sure you understand. Multiple groups to try and work with and not a lot of trust. Very difficult place to work.

Thanks for your honest assessment.

Shawn

From: Durno, Mark [mailto:durno.mark@epa.gov]
Sent: Tuesday, May 9, 2017 2:27 PM
To: Shawn McElmurry <s.mcelmurry@wayne.edu>
Subject: RE: Press releases

Finally had a chance to read these. The legionnaire's press release is overly technical... Otherwise – the messaging is good.

Mark Durno
Homeland Security Advisor
Emergency Response Branch
U.S. Environmental Protection Agency
25063 Center Ridge Road
Westlake, OH 44145
440-250-1743

From: Shawn McElmurry [mailto:s.mcelmurry@wayne.edu]
Sent: Monday, May 08, 2017 10:03 PM
To: Durno, Mark <durno.mark@epa.gov>; Whitney, Cynthia (CDC/OID/NCIRD) <cgw3@cdc.gov>
Cc: Nancy Love <nglove@umich.edu>; Matthew Seeger <matthew.seeger@wayne.edu>
Subject: Press releases

Hello Mark and Cindy, I wanted to give you a quick heads up regarding two press releases that we plan to send out tomorrow. Sorry for the late notice but I wanted you to have a copy of the releases in case you received any questions.

We have worked very hard with our partners to get consensus around these statements. Feedback from both MDHHS and GCHD has been incorporated into the final version. The releases may not be perfect, but it is the best we can do at this time.

Shawn


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Skype: s.mcelmurry
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Durno, Mark

From: Shawn McElmurry <s.mcelmurry@wayne.edu>
Sent: Thursday, July 27, 2017 3:33 PM
To: Robert Bincsik; Pamela Pugh; Durno, Mark; LyonCallo, Sarah (DHHS); James Henry (jhenry@gchd.us); 'Krisztian, George (DEQ)'
Cc: Lara Treemore-Spears; Paul Kilgore
Subject: Low Chlorine Levels Observed July 26-27, 2017

We observed low free chlorine levels (<0.2 mg/L) at houses in the locations listed below. Note many, if not all, are outside of the City of Flint and I have therefore relayed this information to John Obrien from Genesee County Water & Waste.

The samples were collected from the kitchen sink after 5 minutes of flushing at the sink. The flushing followed the collection of multiple other samples elsewhere in the house. Below is the street address (rounded to protect participant identity), city, zip code, date sampled, and concentration observed.

 Cabot Drive, Flint Township, 48532 (7/27/2017) – 0.049 mg/L
Howard Street, Mount Morris, 48453 (7/27/2017) – 0.177 mg/L
Squire Hill Drive, Flushing, 48433 (7/26/2017) – 0.188 mg/L

Per our protocol, we collected a sample that was sent off to be cultured for E.coli. I have not received the results of the E.coli test and I will notify you immediately if the tests come back positive.

Again, so far, all past E.coli tests have thus far come back negative. Feel free to contact me if you have any questions.

Sincerely,
Shawn McElmurry

Shawn P. McElmurry, Ph.D., P.E.
Associate Professor
Wayne State University
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Durno, Mark

From: Shawn McElmurry <s.mcelmurry@wayne.edu>
Sent: Sunday, October 08, 2017 8:11 AM
To: Durno, Mark
Subject: FW: End of Random Sampling
Attachments: FACHEP Testing End-Release 100817.docx

Importance: High

Follow Up Flag: Follow up
Flag Status: Flagged

Hey Mark, sorry for the delayed response to your request for an update. I'm tied up with court proceedings and can't take my phone or laptop when I go (completely stinks). Attached is a press release we will release tomorrow. I'll connect with Nancy and see if we can't set up a time later in the week (maybe Friday?) to chat.

Thanks,
Shawn

From: Shawn McElmurry
Sent: Sunday, October 8, 2017 8:07 AM
To: Pamela Pugh <ppugh@cityofflint.com>; James Henry (jhenry@gchd.us) <jhenry@gchd.us>; Pete Levine <plevine@gcms.org>; 'Russell, Dan' <drussell@genhs.org>; Cupal, Suzanne (scupal@gchd.us) <scupal@gchd.us>
Cc: Matthew Seeger <matthew.seeger@wayne.edu>; Paul Kilgore <paul.kilgore@wayne.edu>
Subject: End of Random Sampling
Importance: High

Dear partners, attached please find a press release we will be releasing tomorrow morning. Fairly mundane, announcing that we have ended our random sampling. Just want to make sure you were aware of it. If you have any questions, please don't hesitate to ask.

Thanks,
Shawn

Shawn P. McElmurry, Ph.D., P.E.
Associate Professor
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Dept. of Civil and Environmental Engineering
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FACHEP concludes random Legionella sampling in Flint, Genesee County and Wayne County

The Flint Area Community Health and Environmental Partnership (FACHEP) team has finished collecting samples from homes as part of a study of the Legionnaires' disease outbreak and its association with changes in the Flint, Michigan, water system. FACHEP has generally met the sampling goals in both Genesee County and Flint. The team will continue to collect samples in targeted areas or when assisting public health partners to evaluate cases of Legionnaires' disease, which is caused by bacteria that can live in water systems.

The team collected multiple water samples in more than 790 randomly identified homes and interviewed their residents in Flint, Genesee County and Wayne County, according to Shawn McElmurry, associate professor of environmental engineering at Wayne State University.

In Flint, more than 370 homes have been sampled since the start of the study. Of the homes that received Flint River water during the 2014-15 water supply change, approximately one-third were sampled in 2016 and the remaining two-thirds were sampled May through September of this year. A total of 272 homes in Genesee County, outside of Flint, participated in the study. Of the homes that participated in Genesee County, about 80 percent were sampled in 2017. In 2017, an additional 147 Wayne County homes also participated. Data collected in Genesee County, outside of Flint, and in Wayne County homes provide comparison information to the Flint data.

Multiple samples were collected from each home resulting in more than 2,800 culture tests for Legionella bacteria. Culturing tests for living bacteria. The analysis of 2017 samples is still underway and results will be presented as soon as they are available. Previously, FACHEP reported finding culturable Legionella in approximately 12 percent of the homes sampled from Sept. 6 through Oct. 29, 2016.

Preliminary analysis suggests approximately 10 percent of all homes on the Flint municipal water system had chlorine levels less than 0.2 mg/L when measured at the kitchen faucet (bypassing filters when present) after five minutes of flushing. Chlorine is added to water distribution systems to reduce bacterial growth. While a uniform standard does not exist, regulatory agencies typically recommend maintaining a minimum free chlorine residual of 0.2 to 0.5 mg/L within water distribution systems.

FACHEP has also worked with the Genesee County Health Department to interview County residents who acquired Legionnaires' disease in 2017. Water samples were also collected from their homes. Analysis of the samples is ongoing and participants will be notified of the results as they are available. Additional results of the study are expected before the end of the year.

In three households where high levels of Legionella were identified, FACHEP worked with local plumbers and Habitat for Humanity to replace hot water heaters and improve household plumbing.

The FACHEP team and its partners appreciate the assistance and patience of residents as we all move toward a better understanding of Legionnaires' disease.

FACHEP is a research consortium led by WSU that includes the University of Michigan, Michigan State University, Kettering University, Colorado State University, and Henry Ford Health System.

The FACHEP project was funded by the Michigan Department of Health and Human Services.

Durno, Mark

From: LyonCallo, Sarah (DHHS) <lyoncallos@michigan.gov>
Sent: Wednesday, March 14, 2018 9:07 PM
To: Durno, Mark
Cc: Krisztian, George (DEQ)
Subject: Re: Shawn, Nancy and Michele just had a media event, where they told people to UV or boil the filtered water.

Follow Up Flag: Follow up
Flag Status: Flagged

Talked with gchd today - Suzanne was at the meeting and said there was not a lot of commotion about the recommendations in fache presentation . Gchd has not gotten any questions.

GCMS did update their guidance recommending bottled water for immunocompromised individuals and infants in a press release in January, adding purified water (thru reverse osmosis) to the recommendations.

On Mar 10, 2018, at 6:25 AM, Durno, Mark <durno.mark@epa.gov> wrote:

Thanks for the knowledge Sarah. I wonder if they also advised that systems outside of Flint do the same since they found bacteria there too. Just curious. Would like to see their discussion.

Sent from my iPhone

Sarah Lyon-Callos
State Epidemiologist and Director
Bureau of Epidemiology and Population Health
Michigan Department of Health and Human Services
517-284-4910

Sent from my iPhone

On Mar 9, 2018, at 2:24 PM, LyonCallo, Sarah (DHHS) <lyoncallos@michigan.gov> wrote:

FYI on water media event in Flint

Sarah Lyon-Callos
State Epidemiologist and Director
Bureau of Epidemiology and Population Health
Michigan Department of Health and Human Services
517-284-4910

Sent from my iPhone

Begin forwarded message:

From: <edwardsm@vt.edu>

Date: March 9, 2018 at 1:45:24 PM EST

To: "'LyonCallo, Sarah (DHHS)'" <lyoncallos@michigan.gov>

Subject: Shawn, Nancy and Michele just had a media event, where they told people to UV or boil the filtered water.

MEDIA OPPORTUNITY

Researchers present new outcomes from Flint Water Crisis

WHAT

University researchers will discuss new findings from their work focused on the Flint Water Crisis during the Healthy Flint Research Coordinating Center's inaugural Healthy Flint Research Symposium, Friday, March 9, at the Riverfront Banquet Center, in downtown Flint.

WHO

- **Yvonne Lewis**, BBA, BS, Co-Director, Community Core, HFRCC; CEO, NCAAHC, moderator
- **Mona Hanna-Attisha**, MD, MPH, Associate Professor of Pediatrics, College of Human Medicine, Michigan State University; Director of Pediatric Residency Program, Hurley Children's Hospital
- **Michele Swanson**, PhD, Professor of Microbiology and Immunology, Medical School, University of Michigan; Director of Postdoctoral Studies Medical School, University of Michigan
- **Shawn McElmurry**, PhD, Associate Professor of Environmental Engineering, Wayne State University
- **Nancy Love**, PhD, Professor of Civil and Environmental Engineering, University of Michigan; Adjunct Professor of Environmental Biotechnology, Addis Ababa University

WHEN

Friday, March 9, 2018

9:45 am – 11:00 am

WHERE

Riverfront Banquet Center

1 Riverfront Plaza

Flint, Mich.